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"A COMPARATIVE STUDY ON LATERAL INTERNAL SPHINCTEROTOMY V/S LORD'S DILATATION IN CHRONIC FISSURE IN ANO PATIENT"

DR. SHUBHANGEE GARG

UNDER SUPERVISION OF

DR. AMIT KUMAR

DEPARTMENT OF GENERAL SURGERY
SANTOSH MEDICAL COLLEGE & HOSPITAL
GHAZIABAD, NCR DELHI

SANTOSH DEEMED TO BE UNIVERSITY
NO. 1, SANTOSH NAGAR,
GHAZIABAD-201009, NCR DELHI, INDIA

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Guide
Dr. Amit Kumar
Professor
Department of General Surgery
Santosh Medical College & Hospital
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Co-Guide
Dr. Varun Pathak
Assistant Professor
Department of General Surgery
Santosh Medical College & Hospital
Ghaziabad, NCR, India

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PROF. (Dr.) Yogendra Kumar
Professor & Head
Department of General Surgery
Santosh Medical College & Hospital
Ghaziabad ,NCR .India

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ABSTRACT

"A COMPARATIVE STUDY ON LATERAL INTERNAL SPHINCTEROTOMY V/S LORD'S DILATATION IN CHRONIC FISSURE IN ANO PATIENT"

Introduction: Anal fissures are elongated ulcers in the anal canal that cause significant discomfort and impact daily activities, particularly when they become chronic. These fissures are commonly treated with surgeries such as lateral internal sphincterotomy (LIS) and anal dilatation, each presenting unique challenges and outcomes. This study focuses on comparing these surgical techniques to determine the most effective approach for treating chronic anal fissures.

Aim and Objective: The study aims to compare the effectiveness, outcomes, and potential complications associated with LIS and Lord's dilatation in managing chronic fissure in Ano. Objectives include assessing and comparing the short-term and long-term outcomes, including rates of fissure healing and pain relief, as well as evaluating potential complications such as postoperative bleeding, incontinence, infection, and recurrence rates.

Methodology: This prospective observational study was conducted at Santosh Medical College and Hospital, involving 120 patients diagnosed with chronic anal fissure, divided into two groups for either LIS or Lord's dilatation. The outcomes were measured through various methods including pain scales, healing rates, and complication records over a follow-up period of three months. Data analysis was performed using SPSS software, focusing on statistical significance of the results obtained.

Results and Conclusion: Both LIS and Lord's dilatation proved effective in treating chronic anal fissures, but with different efficacy profiles. LIS showed higher healing rates (95% at 1 month, 98.3% at 3 months) and lower recurrence rates (1.7% at 3 months) compared to Lord's dilatation. However, Lord's dilatation reported slightly higher immediate postoperative pain relief. Complications were minimal and comparable between the groups. Overall patient satisfaction was higher in the LIS group, correlating with the lower incidence of complications and better long-term outcomes. The study concludes that while both procedures are viable, LIS may offer a better overall treatment profile in terms of healing rates and recurrence, supporting its preferential use in clinical settings for chronic anal fissures.

Keywords: Chronic anal fissures, Lateral internal sphincterotomy (LIS),Lord's dilatation, Surgical treatment comparison, Fissure healing rates, Pain relief, Postoperative complications, Recurrence rates, Prospective observational study, Patient outcomes.

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"God keep me from ever completing anything. This whole book is but a draught – nay, but a draught of a draught. Oh, Time, Strength, Cash, and Patience."

(Herman Melville, Moby Dick)

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Dr. Shubhangee Garg

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LIST OF ABBREVIATIONS

Comp	-	Complications
Eff	-	Effectiveness
FA	-	Fissure in Ano
FH	-	Fissure Healing
LD	-	Lord's Dilatation
LIS	-	Lateral Internal Sphincterotomy
LTO	-	Long-Term Outcomes
Outc	-	Outcomes
PC	-	Potential Complications
POB	-	Postoperative Bleeding
POI	-	Postoperative Incontinence
POInf	-	Postoperative Infection
PR	-	Pain Relief
RR	-	Recurrence Rates
STO	-	Short-Term Outcomes

INTRODUCTION

Anal fissures present a significant challenge for those affected, often causing considerable discomfort and interfering with daily activities. These elongated ulcers along the lower anal canal can be particularly troublesome due to their location and symptoms. Interestingly, they tend to occur most frequently in the midline posteriorly, with midline anterior fissures following closely behind. While anal fissures are more commonly observed in men, they are relatively uncommon in children and the elderly[1]. Symptoms of anal fissures typically include pain, bleeding during bowel movements, and constipation. Given their prevalence, anal fissures rank among the most commonly encountered medical conditions in proctology. When these fissures persist for more than six weeks, they are categorized as chronic. Chronic anal fissures may present additional features such as associated sentinel piles, hypertrophied anal papillae, or visible internal sphincter fibres. In addressing chronic anal fissures, contemporary treatment modalities aim to reduce resting anal pressure while simultaneously enhancing blood supply to the fissure site to promote healing. This approach targets the underlying mechanisms contributing to the persistence of the condition. While surgical intervention has long been the standard treatment for chronic cases, there has been a growing interest in pharmacological sphincter relaxants as alternative options[2]. While these relaxants may show promising results, surgical treatment remains a frequent necessity, particularly in cases where conservative measures prove insufficient. Managing chronic anal fissures requires a comprehensive approach that addresses both the symptoms and underlying causes of the condition. By reducing anal pressure and promoting healing, individuals with anal fissures can experience relief and improved quality of life. Further research and advancements in treatment modalities continue to refine our approach to this common

yet challenging medical issue. When it comes to treating chronic anal fissures (CAF), surgery is often necessary and Lateral internal sphincterotomy remains the surgical treatment of choice for many practitioners[3]. There are two main types of surgery: anal dilatation (AD) and lateral internal sphincterotomy (LIS). These surgeries aim to help heal the fissure and relieve symptoms, but they have their own pros and cons. Lateral internal sphincterotomy involves cutting a small part of the muscle around the anus to reduce pressure on the fissure. It's successful in about 90% of cases but can lead to problems like incontinence or delayed healing. Anal dilatation stretches the anus muscles gradually to help heal the fissure. It's been criticized for its high recurrence rates and risk of incontinence[4]. Deciding which surgery to go for depends on factors like how bad the fissure is, what the patient prefers, and how experienced the surgeon is. Researchers want to compare these surgeries to see which one is better for relieving pain, healing the fissure, and preventing problems like incontinence or the fissure coming back. Understanding the benefits and risks of each surgery helps doctors choose the best option for each patient. This study aims to give more insight into which surgery works best for treating chronic anal fissures and keeping patients comfortable in the long run[5].

The optimal approach for treating chronic fissure in ano remains a topic of debate within the medical community. Lateral internal sphincterotomy involves the surgical division of the internal anal sphincter muscle to reduce pressure on the fissure, while Lord's dilatation aims to stretch the anal sphincter gradually. Despite their widespread use, there is limited consensus on which technique yields superior outcomes in terms of pain relief, wound healing, and postoperative complications. This study seeks to address this gap by conducting a comparative analysis of lateral internal sphincterotomy versus Lord's dilatation in the management of chronic fissure in ano.

By evaluating factors such as patient-reported pain levels, rates of wound healing, and incidence of postoperative complications, we aim to provide valuable insights into the efficacy and safety of these surgical approaches. The findings of this study have the potential to inform clinical practice and enhance patient care by aiding clinicians in selecting the most suitable treatment option for individuals with chronic fissure in ano. A better understanding of the relative merits of these techniques may contribute to the refinement of surgical protocols and improve treatment outcomes for this common yet challenging condition[6]. Chronic anal fissure (CAF) is a common problem where there's a tear in the skin around the anus that causes pain, bleeding, and constipation. It's a frequent issue seen in proctology and can be caused by things like hard stools and tight muscles around the anus. Treating CAF can involve medicines or surgery, but there's no agreement on the best approach. Medical treatments often don't work well, while surgical options like Lord's anal dilatation (LAD) and lateral internal sphincterotomy (LIS) have their pros and cons. LAD is a simple surgery but can lead to the fissure coming back and problems with controlling bowel movements. LIS is now more commonly used, but it also carries a risk of bowel control issues. This study aims to compare LAD and LIS in treating anal fissures, looking at how symptoms improve, any issues after surgery, and if the fissure comes back. By understanding which method works better and is safer, doctors can improve how they treat chronic anal fissures, helping patients feel better and avoid future problems[7].

RATIONALE OF THE STUDY

The rationale for conducting a comparative study on lateral internal sphincterotomy (LIS) versus Lord's dilatation in chronic fissure in ano patients stems from the need to optimize treatment outcomes and improve patient care in this prevalent medical condition. Chronic fissure in ano, characterized by a painful tear in the anal canal, poses significant challenges in management due to its recurrence and the associated discomfort it causes. Both LIS and Lord's dilatation are commonly employed surgical interventions aimed at relieving symptoms and promoting healing in chronic fissure in ano patients. However, there exists a paucity of comparative research evaluating the efficacy, safety, and long-term outcomes of these two procedures. By conducting a rigorous comparative study, this research seeks to provide evidence-based insights into the relative merits of LIS and Lord's dilatation, thereby informing clinical decision-making and improving the quality of care for patients suffering from chronic fissure in ano. Key parameters to be investigated include postoperative pain, healing rates, recurrence rates, complications, and patient satisfaction, with the ultimate goal of identifying the most effective and least invasive treatment modality for this challenging medical condition[8].

AIM AND OBJECTIVES

Aim

- The aim of this study is to compare the effectiveness, outcomes, and potential complications of lateral internal sphincterotomy and different methods of dilatation in the management of fissure in Ano.

Objective

- To assess and compare the short-term and long-term outcomes of lateral internal sphincterotomy and lord's dilatation, including rates of fissure healing and pain relief.
- To evaluate the potential complications associated with lateral internal sphincterotomy and dilatation, such as postoperative bleeding, incontinence, infection, and recurrence rates.

REVIEW OF LITERATURE

Anal fissures are a common condition that can affect both acute and chronic stages, affecting a significant portion of the global population. An anal fissure is defined as a longitudinal tear or ulcer in the distal anal canal, often causing pain, discomfort, and sometimes bleeding. Chronic fissures are typically deeper and may involve exposed internal sphincter fibres at their base, which contributes to persistent pain and difficulty healing. These chronic fissures are often accompanied by a hypertrophic anal papilla at the proximal end and a sentinel pile at the distal end, both of which are indicative of the long-standing nature of the condition. These anatomical features contribute to the chronicity and complexity of managing anal fissures[9]. Araujo et al. conducted a prospective clinical trial involving 190 patients divided into three groups, comparing medical treatment (n=128) with lateral internal sphincterotomy (LIS, n=62). Their findings demonstrated impressive pain relief rates, with 93% of patients experiencing relief within two weeks and 100% by the eighth week following LIS[10]. Similarly, our study also reported 100% pain relief in patients who underwent LIS. Furthermore, a comparison between Botox and LIS treatments revealed that patients in the LIS group were dissatisfied with their treatment, a figure significantly lower than the dissatisfaction rate in the Botox group, Botulinum toxin injection has a higher recurrence rate than LIS, and LIS provides rapid and permanent recovery. However, LIS carries a higher risk of anal incontinence in patients [11]. Additionally, a single centre study by Salih et al. found an even lower dissatisfaction rate of just 1% in the LIS group, further supporting the effectiveness and patient satisfaction associated with this surgical approach[12].

Surgical techniques like manual anal dilatation and lateral internal sphincterotomy are highly effective in healing chronic anal fissures, typically within a few weeks. However, both procedures carry the risk of impairing anal continence, with potential long-term consequences[13]. The American Society of Colon and Rectal Surgeons' Standard Task Force has recommended lateral internal sphincterotomy as the preferred surgical approach for treating chronic anal fissures due to its high success rate in promoting healing and providing lasting relief. Despite its benefits, the procedure is not without risks, as it may result in permanent changes to anal function, though such outcomes are relatively uncommon[14].

1. Pathophysiology of Chronic Anal Fissure

Anal fissures are linear ulcers in the anoderm, typically located at the posterior or anterior midline. The pathogenesis involves increased anal sphincter tone, leading to reduced blood flow and ischemia of the anoderm, which impairs healing and perpetuates the fissure[15-17]. Factors contributing to CAF include constipation, prolonged straining, low-fibre diet, and trauma to the anal canal.

AETIOLOGY The passage of large, hard stools is often considered a primary instigator. When stools are particularly hard or large, they can stretch and tear the delicate lining of the anal canal, paving the way for fissures to form. dietary habits play a significant role. Furthermore, individuals with a history of anal surgeries, such as haemorrhoidectomy or fistula-in-ano surgery, may experience distortion of the anal canal due to scarring, diminishing its elasticity and predisposing it to fissure formation. Perineal trauma, such as that experienced during childbirth or other forms of injury, can also contribute to fissure development. Trauma to the perineal region can lead to scarring and abnormal tethering of the anal submucosa, reducing its laxity

and mobility and rendering it more susceptible to fissures. certain medical conditions may heighten the risk of anal fissures. For instance, individuals with hypothyroidism may experience reduced blood flow to the anal region, impairing the healing process and increasing susceptibility to fissures. Similarly, inflammatory bowel diseases like Crohn's disease can impact blood flow and tissue health, further predisposing individuals to fissures. Chronic laxative abuse is another factor to consider. Individuals who misuse laxatives may experience chronic loose stools, which can lead to anal stenosis with scarring. This condition reduces the elasticity of the anal tissue, making it more prone to fissure formation. Understanding the multifaceted nature of these factors is essential for managing and preventing anal fissures effectively. By addressing dietary habits, managing underlying medical conditions, and avoiding behaviours that contribute to anal trauma or dysfunction, individuals can reduce their risk of developing anal fissures and promote overall anal health[18]. Over time, the continuous high pressure from the internal anal sphincter can lead to fibrosis and the development of a chronic fissure.

1. **Mechanical Stress and Trauma:** Fissure in Ano frequently arises from trauma or injury to the anal canal. This trauma can manifest in various forms, including the passage of hard or large stools, chronic constipation, and excessive straining during bowel movements. Additionally, trauma associated with anal intercourse can contribute to the development of fissures. The repeated mechanical stress exerted on the anal canal leads to the disruption of the delicate mucosal lining, thereby initiating the formation of a fissure. Over time, this continuous trauma can exacerbate the fissure's severity and hinder the healing process.

2. **Hypertonia of the Internal Anal Sphincter:** The internal anal sphincter, a circular muscle encircling the anal canal, is vital for maintaining continence. In

cases of fissure in Ano, there is frequently an observed increase in the resting tone of this muscle, a condition referred to as hypertonia. This heightened muscle tone plays a significant role in perpetuating the fissure. The hypertonicity of the internal anal sphincter impedes adequate blood supply to the affected area, thereby compromising the healing process[19]. The reduced blood flow exacerbates tissue damage and inflammation, contributing to the persistence of the fissure. Furthermore, the heightened muscle tone can intensify discomfort and pain experienced by the individual, creating a cycle wherein pain triggers sphincter spasm, further exacerbating tissue trauma and impeding healing. Addressing the hypertonia of the internal anal sphincter is crucial in the management of fissure in Ano. Therapeutic interventions aimed at relaxing the sphincter muscle, such as topical medications or certain medical procedures, can help alleviate symptoms, promote healing, and break the pain cycle associated with this condition.

3. **Ischemia and Impaired Blood Supply:** The interplay of trauma-induced injury and heightened internal anal sphincter tone contributes to ischemia, a condition characterized by inadequate blood supply to the region surrounding the fissure in Ano. The trauma inflicted on the delicate anal mucosa disrupts its vascular network, while the hypertonicity of the internal anal sphincter further compromises blood flow to the affected area. This dual effect creates an environment of diminished oxygen and nutrient delivery to the injured tissues, hindering proper healing and tissue repair. Inadequate blood supply impedes the body's ability to initiate the reparative processes necessary for fissure resolution. Without sufficient oxygen and nutrients, the healing process becomes protracted, and the fissure may persist chronically. Addressing the ischemic component of fissure in Ano management is imperative for promoting effective healing and

resolution. Therapeutic strategies aimed at improving blood flow to the affected area, such as topical medications or surgical interventions, may be employed to mitigate ischemia and facilitate tissue repair[20].

4. **Anatomical Predispositions in Anal Canal Anatomy:** The anatomy of the anal canal can influence an individual's susceptibility to developing fissure in Ano. Several anatomical factors may predispose individuals to this condition, including variations in the structure and function of the anal sphincter muscles, anal stenosis, and the presence of skin tags or sentinel piles near the fissure site. Tightness or hypertonicity of the anal sphincter muscles can create a state of increased tension and pressure within the anal canal. This heightened muscular tone may exacerbate trauma during bowel movements, leading to the initiation and persistence of fissures. Similarly, anal stenosis, characterized by a narrowing of the anal canal, can predispose individuals to fissure development by impeding normal bowel movements and increasing mechanical stress on the anal mucosa. The presence of skin tags or sentinel piles near the fissure site can also contribute to the pathogenesis of fissure in Ano. These anatomical structures may result from previous episodes of anal trauma or inflammation and can serve as sites of increased friction and trauma during bowel movements. Consequently, the presence of skin tags or sentinel piles can exacerbate tissue damage and impair the healing process, perpetuating the cycle of fissure formation and persistence. These anatomical variations not only increase the likelihood of trauma but also disrupt normal blood flow to the anal mucosa, further aggravating the condition. Addressing these anatomical predispositions through targeted therapeutic interventions, such as sphincter relaxation techniques or surgical procedures to

correct anal stenosis or remove skin tags, is essential for effectively managing fissure in Ano and promoting optimal healing and symptom relief.

5. **Inflammatory Response and Nerve Sensitization:** Following the initial tear or ulceration in the anal canal characteristic of fissure in Ano, the body initiates an inflammatory response as part of the healing process. This inflammatory cascade involves the release of various chemical mediators, including cytokines and neuropeptides, into the surrounding tissue. These inflammatory mediators serve multiple functions, including recruiting immune cells to the site of injury and promoting tissue repair. However, they also have a notable effect on local nerve fibres. The release of cytokines and neuropeptides sensitizes nearby nerves, heightening their responsiveness to stimuli. As a result, individuals with fissure in Ano experience heightened pain perception in the affected area. This cycle of pain and inflammation can become self-perpetuating. The persistent presence of inflammation and nerve sensitization leads to ongoing discomfort and pain, further exacerbating the condition. The pain experienced during bowel movements or other activities can induce sphincter spasm, exacerbating tissue trauma and perpetuating the cycle of fissure formation and persistence. Addressing both the inflammatory component and nerve sensitization is crucial in managing fissure in Ano effectively. Treatment strategies aimed at reducing inflammation and modulating nerve activity, such as topical medications or nerve blocks, can help alleviate symptoms and break the cycle of chronic pain and inflammation associated with this condition. Additionally, promoting optimal healing and tissue repair through measures like dietary modifications and proper anal hygiene can aid in resolving fissures and preventing their recurrence.

6. **Impact on Faecal Continence and Bowel Habits:** Fissure in Ano can profoundly affect faecal continence and bowel habits, creating a significant burden for individuals suffering from this condition. The fear of experiencing pain during bowel movements is a common concern among patients with fissure in Ano. This fear can lead to avoidance of defecation or conscious efforts to withhold stools, resulting in constipation. Constipation exacerbates the symptoms of fissure in Ano by prolonging the transit time of stool through the colon. As a result, stools become harder and larger, increasing the likelihood of trauma to the fissure site during defecation. The passage of hard or large stools can further irritate and injure the already compromised anal mucosa, perpetuating the cycle of tissue damage and preventing effective healing. The discomfort and pain associated with fissure in Ano can lead to involuntary sphincter spasm during bowel movements. Sphincter spasm exacerbates the trauma to the fissure site, intensifying pain and hindering the passage of stools. This vicious cycle of pain, sphincter spasm, and bowel dysfunction contributes to the chronicity of fissure in Ano and impairs the individual's quality of life. Addressing the impact of fissure in Ano on faecal continence and bowel habits is crucial in managing this condition effectively. Treatment strategies aimed at alleviating pain, promoting regular bowel movements, and preventing constipation are essential components of comprehensive fissure management. Additionally, patient education regarding proper bowel habits and defecation techniques can help individuals mitigate symptoms and optimize their bowel function.

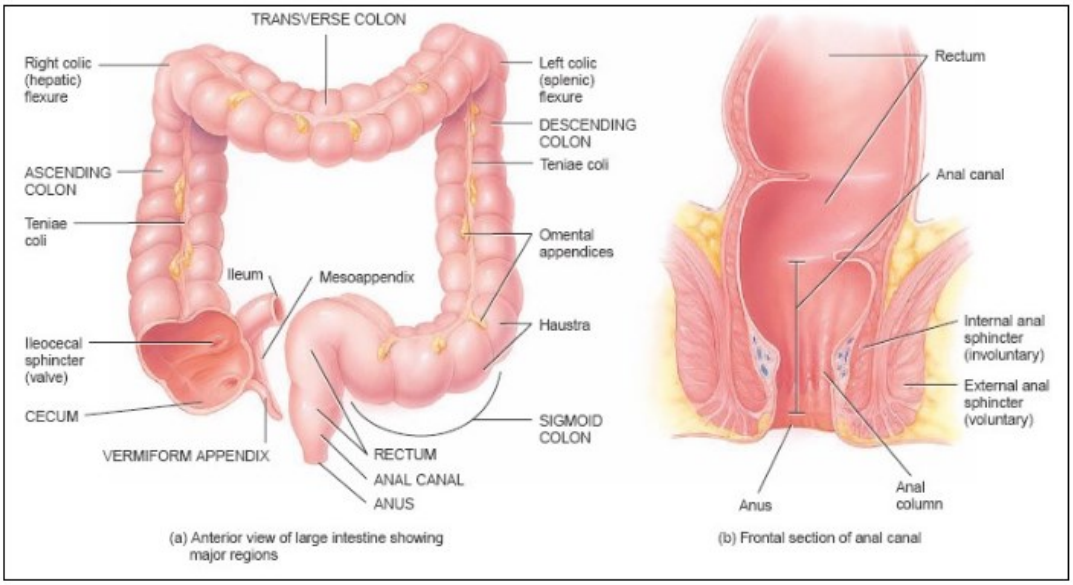
ANATOMY OF THE ANAL CANAL: Diseases affecting the anorectal area are some of the most common problems concerning the lower part of the digestive system. They can pose complex challenges in terms of treatment and management.

When it comes to conditions like fissures-in-ano, it's crucial for medical professionals, particularly surgeons, to have a deep understanding of the anatomy and physiology of the anal canal. Having a thorough grasp of the anatomy is not only important for performing surgical procedures if needed but also for understanding the progression of conditions like fistulas and abscesses. This knowledge helps in diagnosing and managing cases of fissures-in-ano effectively. Researchers and medical experts have contributed significantly to our understanding of anorectal anatomy. Authors like Milligan and Morgan, who conducted extensive studies in the mid-20th century, provided invaluable insights into this field. Their work included not only surgical procedures but also detailed histological analyses. In cases of fissures-in-ano, surgical interventions such as fissurectomy sphinterotomy are often necessary. Therefore, a solid understanding of the anatomy of the anal canal and rectum is essential. By dividing the ano-rectal region into distinct parts - the rectum and the anal canal - medical professionals can better comprehend the complexities of the area and tailor treatment plans accordingly. This understanding is vital for providing optimal care to patients with anorectal conditions.

Anal Canal: The anal canal is a fascinating structure that develops from two different embryonic layers. Part of it comes from the endoderm of the primitive rectum, while the other part originates from the ectoderm of the anal pit, also known as the proctodaeum. The meeting point of these two parts forms a distinctive line called the anal valves or the Pectinate Line. Anatomically, the anal canal stretches from the anal valves down to the anal verge, which is essentially the outer boundary of the anal canal. This entire length is crucial for various functions related to digestion and waste elimination. From a surgical perspective, the anal canal is viewed slightly differently. Surgically speaking, the anal canal begins where the rectum passes through the pelvic

diaphragm and extends down to the anal verge. This distinction is important for procedures and treatments that involve the anal canal, providing a clear boundary for surgical intervention and management. Understanding these distinctions is fundamental for surgeons and medical professionals dealing with conditions affecting the anal canal.

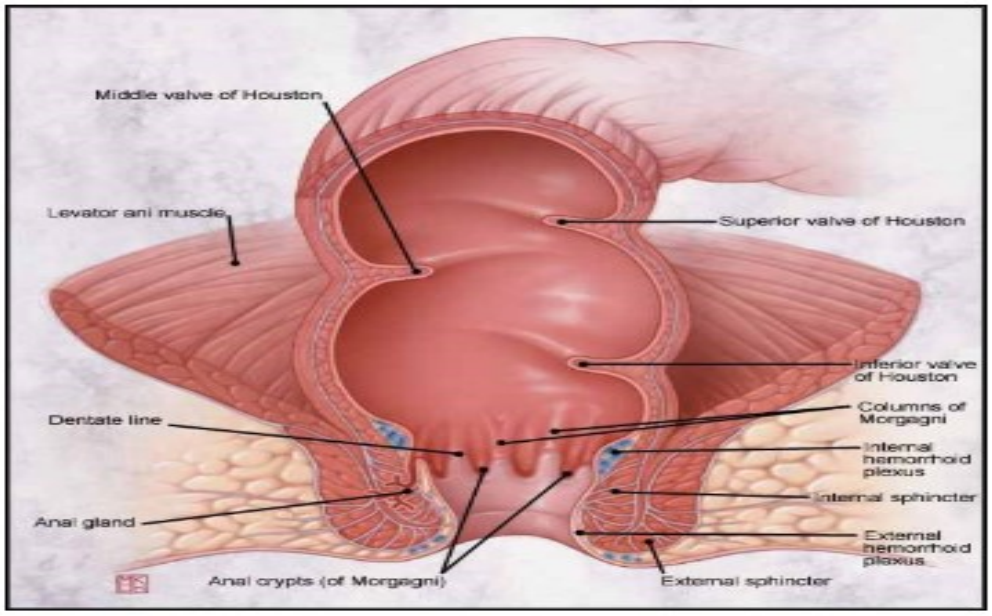
RECTUM-



The rectum serves as the terminal portion of the descending colon, situated in the posterior region of the pelvis. It is an essential part of the large intestine, connecting to the sigmoid colon at the level of the 3rd sacral vertebra and nestled within the concavity of the sacrum. The length of the rectum can vary from person to person, typically ranging from 12 to 15 centimetres. It terminates about an inch in front of the tip of the coccyx, where it narrows down and transitions into the anal canal. The rectum exhibits two convex curves, one on the right and one on the left side, while the pelvic floor provides support through the levator ani muscles, giving the impression that the rectum is suspended within the pelvis. At the recto-sigmoid junction, the rectum's lumen is comparable in size to the rest of the large intestine, but it gradually

expands to form the widest portion known as the ampulla. Beyond this point, it tapers down again and terminates at the pectinate line, continuing into the anal canal. Peritoneal covering of the rectum is incomplete, resulting in terms like "extra-peritoneal anal" and "intra-peritoneal rectum." The upper third of the rectum is partially covered anteriorly by peritoneum, with the middle third covered only anteriorly, while the lower third lacks any peritoneal covering. In females, the peritoneum reflects on the posterior wall of the vagina and uterus, forming the "Recto-uterine" or "Pouch of Douglas," while in males, it reflects on the urinary bladder, forming the "recto-vesicle pouch." The rectum has three layers of musculature: the inner mucous membrane, the circular muscle coat, and the longitudinal muscle coat. Functionally, the rectum is divided into an upper part, containing feces and capable of distending towards the peritoneal cavity, and a lower part, confined within a tube of condensed extra-peritoneal tissue and typically remaining empty in healthy individuals. In males, the rectum is separated anteriorly from the prostate by Denonvilliers' fascia and posteriorly from the coccyx and last two sacral vertebrae by Waldeyer's fascia, serving as barriers to malignant penetration. The rectum exhibits three lateral curvatures, marked by semicircular folds known as Houston's valves. O'Brien and Hurst proposed that the sigmoid colon acts as a fecal reservoir, while the rectum is normally empty. Distention of the rectum and anal canal, such as with the entry of feces, triggers the desire to defecate and leads to relaxation of the anal sphincter.

ANAL CANAL:



Anatomy of anal canal

The anal canal starts from the lower part of the rectum and continues seamlessly from the rectal ampulla. It then tapers suddenly as it descends downwards and backwards, ultimately ending at the anus, also known as the anal verge. Typically, its length ranges from 1.5 to 3 centimeters, with a diameter of around 3 centimeters during normal defecation. The anterior wall is slightly shorter than the posterior wall, a detail supported by Nelter. Situated posteriorly to the perineal body, the external opening of the anus lies in the midline. When empty, the lumen of the anal canal forms longitudinal folds. Posteriorly, it comes into contact with a dense mass of fibrous and muscular tissue called the ano-coccygeal ligament, which acts as a barrier between the anal canal and the tip of the coccyx. Anteriorly, it is separated from the perineal body by the membranous part of the bulbous urethra in males and the lower end of the vagina in females. Laterally, it is surrounded by the Ischiorectal fossae, which house the external sphincter muscles. This arrangement provides structural support and contributes to the function of the anal canal in waste elimination.

7. Conservative Management

Conservative management for chronic anal fissures generally involves non-invasive measures aimed at relieving symptoms, promoting healing, and preventing recurrence. Common approaches include:

- **Dietary Modifications**:
    - **High-fiber diet**: Increase fiber intake to soften stools and reduce straining during bowel movements.
    - **Hydration**: Drink plenty of water to help prevent constipation.
- **Stool Softeners**:

  Use of over-the-counter stool softeners (e.g., docusate) can make bowel movements easier and reduce trauma to the fissure.
- **Topical Treatments**:

  Various medical treatments have been suggested, calcium channel blockers including nifedipine/lidocaine[21] diltiazem[22], nitro-glycerine, glyceryl trinitrate (GTN) ointments[23] and botulinum toxin topical anaesthetics[24].
- **Warm Sitz Baths**:

  Soaking the anal area in warm water for 10-15 minutes several times a day can promote relaxation of the sphincter muscle, improve blood circulation, and reduce pain[25].
- **Pain Relief**:

  Over-the-counter pain relievers like ibuprofen or acetaminophen can help reduce discomfort.

- **Avoidance of Straining**:

  Patients are advised to avoid prolonged sitting on the toilet and straining during bowel movements.

- **Psychological Support**:

  Stress management and relaxation techniques can be helpful, as chronic pain may contribute to muscle tension.

These measures can be effective in managing chronic anal fissures. However, if conservative treatments fail, other like botulinum toxin injections, surgery may be considered[26].

3. Surgical Management

When conservative treatments fail, surgical options are considered. LIS and LAD are two primary surgical interventions for CAF.

Lateral Internal Sphincterotomy (LIS)

LIS involves the partial division of the internal anal sphincter to reduce its tone, thereby improving blood flow and promoting healing of the fissure. It is considered the gold standard for surgical treatment of CAF[27]. Studies have shown that LIS effectively heals most fissures within a few weeks[28]. However, potential complications include transient or permanent faecal incontinence. relaxation of the internal anal sphincter and reduces anal sphincter tone, enabling healing of the anal fissure. A radial incision in the anoderm exposes the internal sphincter muscle fibres. The distal segment of the internal anal sphincter muscle is divided

sharply for the length corresponding to that of the anal fissure.The wound is left open. Sphincterotomy, a procedure where the internal anal sphincter is cut, has become a

common treatment for chronic anal fissures. Eisenhammer was the first to describe this method in 1951. He studied the anatomy of the anal canal and found that the floor of an anal fissure was made up of the internal sphincter muscle. Eisenhammer's approach involved cutting the internal sphincter through the fissure floor and then gently stretching the anus with instruments[29]. Many surgeons adopted Eisenhammer's technique and made small changes to improve it. For instance, some extended the incision from the internal sphincter to the skin around the anus, while others made a circular cut in the skin before reaching the internal sphincter. These modifications aimed to enhance drainage and speed up healing. In 1971, M.J. Motharas introduced a new method called lateral subcutaneous internal anal sphincterotomy. This technique aimed to avoid creating an open wound inside the anus, which could slow down healing. Instead, it preserved the divided internal sphincter muscle intact. This technique became preferred in some cases to prevent certain deformities and promote faster healing[30].Another variation was done by Miller, who performed lateral internal sphincterotomy using a tenotomy knife. After making an incision, he would break the last few fibres of the muscle with his finger, creating a V-shaped groove. These different approaches show how surgical techniques evolve over time to improve outcomes and patient comfort when treating chronic anal fissures[31].

Complication: In 1962, Bennet and colleagues found that about 30% of individuals who underwent mid-posterior sphincterotomy experienced fecal soiling of their underclothes and the anal region. They also noted a furrow deformity in 12 out of 16 patients, with 8 of them having minor degrees of anal incontinence following the procedure[32]. Similarly, in 1967, Hardey reported that 19 out of 59 patients developed a keyhole deformity as a result of mid-posterior internal sphincterotomy[33]. Additionally, Clery's research in 1970 showed a 6% incidence of faecal soiling among

patients who underwent this procedure. These findings highlight the potential complications associated with mid-posterior sphincterotomy, including faecal incontinence and anatomical deformities.

Lord's Anal Dilatation (LAD)

LAD is a non-incisional technique that involves the gradual dilation of the anal canal using finger pressure or dilators. The goal is to reduce sphincter spasm and allow the fissure to heal. While LAD has been practiced for many years, studies suggest that it may have a higher recurrence rate compared to LIS[34]**.** In Anal dilatation, following the method outlined by Watts et al., involves a systematic approach to alleviate constriction in the anal canal. The procedure begins with a thorough assessment, including digital rectal examination and proctoscopy, to confirm clinical findings and rule out alternative causes of bleeding. Once the examination is completed and the constriction band corresponding to the anorectal line is identified, the process of dilatation begins. With the index finger of the right hand fully lubricated, it is introduced into the anal canal to palpate the constriction band. Subsequently, the index finger of each hand is introduced into the anal canal, and continuous, gentle outward pressure is applied until the constriction is overcome. Throughout the procedure, the hands move around the anal canal to ensure thorough relaxation of all segments. The goal is to achieve sufficient relaxation of the anal canal to accommodate four fingers (two from each hand) simultaneously, without exerting excessive force.[35] This gradual and systematic approach to anal dilatation aims to effectively alleviate constriction and improve patient comfort.

CLINICAL FEATURES:

Chronic anal fissure can cause several discomforts:

Pain Around the Anus: People may feel sharp or burning pain, especially during or after going to the bathroom. This pain can last for hours even after using the toilet.

Bleeding: Bright red blood might appear on toilet paper or in the toilet bowl after bowel movements.

Itching: An itchy feeling around the anus is common.

Trouble Pooping: Fissures can make it hard to pass stool, leading to constipation.

Visible Tear: Sometimes, you can see a small tear or crack in the skin around the anus.

Swelling: The area around the anus might swell or become inflamed.

Leakage: In severe cases, there may be problems controlling bowel movements, resulting in leakage[36].

6. Comparative Studies

Several studies have compared LIS and LAD:

- **Uttam A et al. (2018)** carried out a study to compare two surgical methods, Lords anal dilatation (LAD) and Lateral internal sphincterotomy (LIS), for treating chronic anal fissures. The research took place at the Department of General Surgery, ESIC Medical College, Kalaburagi, over a year from June 2016 to May 2017. Their study involved 80 patients who required surgical intervention for chronic anal fissures. These patients were evenly split into two groups, with 40 patients in each group. In Group A, patients underwent LAD, while those in

Group B underwent LIS. The patients were closely monitored for six months post-surgery, during which various parameters such as pain, bleeding, incontinence, post-operative hospital stay, and recurrence were assessed. Pain emerged as the most common issue, affecting 97% of the patients, and a notable number of them presented with a sentinel tag at the 6 o'clock position. To measure pain, constipation, and incontinence, specific scales like the Wong Baker scale, Modified Longo score, and Wexner scales were employed, respectively. The study found that while pain scores were significantly higher in the LAD group 24 hours after the operation, there were no other notable differences between the two groups in terms of symptoms, complications, or recurrence at different evaluation points. This research sheds light on the effectiveness and comparative outcomes of LAD and LIS in managing chronic anal fissures, offering valuable insights for clinicians and patients alike. A prospective randomized controlled trial involving 80 patients found that both LIS and LAD were effective in treating CAF. However, LIS was associated with a lower recurrence rate and fewer postoperative complications[37].

- **Pinsk et al. in 2020**, they delved into the intricate realm of chronic anal fissures, focusing specifically on the enduring repercussions of standardized anal dilatation on anal continence. This investigation was prompted by the necessity to discern the effects of anal dilatation on both anal sphincter functionality and the recurrence of fissures over an extended period. The primary objective of their research was to meticulously evaluate how anal dilatation, when executed systematically and adhering to standardized protocols, influenced anal sphincter function and the likelihood of fissure recurrence. Through meticulous analysis and observation, their study illuminated a promising trajectory. They found that the

implementation of anal dilatation, following rigorous standardization procedures, resulted in favourable outcomes devoid of complications. Importantly, their findings indicated no discernible long-term negative repercussions on anal sphincter function. This research by Pinsk et al. represents a crucial advancement in the understanding and management of chronic anal fissures. By elucidating the efficacy and safety of standardized anal dilatation, it offers valuable insights that can guide clinical practice and enhance patient care strategies in addressing this challenging medical condition. A study evaluating the long-term effects of standardized anal dilatation reported that while the procedure was effective, it carried risks of complications such as incontinence[38].

- **Yucel et al. (2009)[39]** did a study to see if a method called Continuous Infusion Anal Dilatation (CIAD) with a tool called Park's speculum could be as good as another method called Lateral Internal Sphincterotomy (LIS) for treating chronic anal fissures. They split forty patients into two groups: one got CIAD, and the other got LIS. They checked how the patients were doing before and after the treatment and measured their mean anal canal resting pressures (MACRPs). After two months, they found that 18 patients who got CIAD and 17 who got LIS were fully healed without any problems. Surprisingly, both groups felt similar improvements in pain, bleeding, and constipation. Before the treatment, both groups had similar MACRPs. After two months, both groups showed a decrease in MACRPs, but there wasn't much difference between the two groups. This suggests that using CIAD with Park's speculum could work as well as LIS for chronic anal fissures. Both methods seem to give similar results in healing and improving symptoms.

- **Pandit RK et al. (2019)[40]** carried out a study to compare two treatments for chronic anal fissures, focusing on pain relief, ulcer healing, incontinence, and recurrence. They observed 50 patients in Group A who received one treatment (AD), and 44 patients in Group B who received another treatment (LIS). They followed up with the patients for an average of 3.5 ± 4.9 months. After one month, they found that pain relief was seen in 45 patients (90%) in Group A and 42 patients (95.45%) in Group B. Also, ulcer healing was observed in 47 patients (94%) in Group A and 43 patients (97.7%) in Group B. However, after 3 months, 12 patients (24%) in Group A and 3 patients (6.8%) in Group B reported minor incontinence, such as mucous discharge. This difference in minor incontinence between the two groups was statistically significant (p=0.046), although no cases of major incontinence were reported in either group. During and after the study, recurrence of symptoms was noted in eight patients (16%) in Group A and one patient (2.27%) in Group B. This variance in recurrence rates between the two groups was found to be significant (p=0.05).

- **Razzaq MA et al. (2019)[41]** conducted a study to compare the effectiveness and safety of anal dilatation versus lateral internal anal sphincterotomy for treating anal fissures. This research employed a quasi-experimental design and took place at two medical facilities: the Department of General Surgery in Central Park Hospital, Lahore, and Bhatti Teaching Hospital, Kasur. Over the course of a year, from July 2017 to June 2018, they observed and analyzed the outcomes of both procedures. Their study included patients aged 20 to 65 years, with the mean ages in both groups being close. They observed a slightly higher proportion of female patients in both groups, with the female-to-male ratio being higher in group A compared to group B. The findings indicated that patients who underwent lateral

sphincterotomy experienced a shorter hospital stay compared to those who underwent anal dilatation. Additionally, the incidence of complications was lower among patients who underwent lateral sphincterotomy.

- **Kumar D et al. (2018)**[42] conducted a prospective, randomized controlled trial comparing two techniques: Lords anal dilatation (LAD) and lateral internal sphincterotomy (LIS) for managing chronic anal fissure (CAF). The study, conducted at a tertiary care hospital from June 2016 to May 2017, enrolled 100 patients, dividing them into two groups with 50 patients each. Their study revealed that pain was the most common complaint among patients, with a majority presenting with a sentinel tag at the 6 o'clock position. While pain scores were notably higher in the LAD group at the initial 24-hour postoperative period, there were no significant differences between the two groups in terms of symptoms, complications, or recurrence during the follow-up period. Both studies provide valuable insights into the comparative effectiveness and considerations associated with these two surgical techniques for managing chronic anal fissures.

- **Bhuvaneshwari et al.**[43] undertook a comprehensive study aimed at assessing various treatment modalities for chronic anal fissures. Their research focused on comparing the effectiveness of three prominent approaches: 2% Diltiazem ointment, Lords Anal Dilatation, and Subcutaneous Lateral Internal Sphincterotomy (LIS). Through meticulous examination and analysis, Bhuvaneshwari et al. sought to discern which treatment modality offered the most favorable outcomes in terms of fissure healing and complications. Their findings unveiled a clear preference for Subcutaneous LIS as the superior therapeutic intervention. Notably, patients who underwent Subcutaneous LIS exhibited a remarkable 100% healing rate with minimal complications, setting it apart from

the other modalities under scrutiny. This study by Bhuvaneshwari et al. represents a significant contribution to the clinical understanding and management of chronic anal fissures. By highlighting the efficacy and safety profile of Subcutaneous LIS compared to alternative treatments, it provides valuable guidance for healthcare practitioners in optimizing treatment strategies for patients grappling with this distressing condition.

- In Salati's thorough review published in 2021,[44] a comprehensive exploration of anal fissures was undertaken, covering various aspects including clinical presentation, etiopathogenesis, impact on quality of life, and management strategies. This review served as a valuable synthesis of recent developments in the literature, offering insights into both surgical and non-surgical approaches for addressing this challenging condition. By meticulously summarizing the latest updates in research and clinical practice, Salati's review shed light on the diverse array of management options available for anal fissures. Among these options, lateral internal sphincterotomy emerged as the gold standard for definitive management, despite the acknowledged risk of anal incontinence associated with this procedure. Salati's review not only provided a comprehensive understanding of the multifaceted nature of anal fissures but also underscored the importance of considering both the benefits and potential drawbacks of various management approaches. This nuanced perspective is invaluable for clinicians and researchers alike, as they strive to optimize patient care and outcomes in the realm of anal fissure management.

MATERIAL AND METHODS

The prospective observational study was conducted in the Department of General Surgery, Santosh Medical College and Hospital, Ghaziabad, over a period of 18 months, following approval from the institutional ethics committee. Detailed written informed consent was obtained from the patients before they were inducted into the study.

STUDY DESIGN: Observational study

STUDY DURATION: 18 months

Total study period	Review of literature and proforma design	Data collection	Data analysis	Thesis writing and submission
18 months	1 month	12 months	2 months	3 months

STUDY POPULATION: Patients with confirmed diagnosis of chronic anal fissure.

SAMPLE SIZE: 120 (60patients in each group)

Sample size is calculated using the formula.

$$n = deff \times \frac{N\hat{p}\hat{q}}{\frac{d^2}{1.96^2}(N-1) + \hat{p}\hat{q}}$$

where

n = sample size
$deff$ = design effect
N = population size
$\hat{p}$ = the estimated proportion
$\hat{q} = 1 - \hat{p}$
d = desired absolute precision or absolute level of precision

The data was collected and entered in MS excel 2010. Different statistical analysis was performed using Stata MP-17.

• The one-sample Kolmogorov – Smirnov test was employed to determine whether the data sets differed from a normal distribution or not. Normally distributed data were analysed using parametric tests, while non-normally distributed data were analysed using non-parametric tests.

• Descriptive statistics were calculated for qualitative and categorical variables. Graphical representations of the variables were shown to understand the results clearly, and the association for categorical datasets was analyzed using the Chi-Square test.

• Independent T-tests or Student's T-tests were applied to measure the mean difference between two groups.

• Correlation was estimated to measure the strength of the relationship between two or more quantitative variables. A p-value < 0.05 was considered statistically significant, while a p-value > 0.05 was considered statistically insignificant.

SAMPLING METHOD: Convenient sampling

SELECTION OF SUBJECTS-

INCLUSION CRITERIA:

- Patient with chronic anal fissure
- No history of previous treatment of fissure
- Failed medical treatment for fissure in Ano.
- Age 18-60 years
- Gender- both males and females

EXCLUSION CRITERIA:

- Patient refusal to participate.
- Patient with anal fissure secondary to other diseases like inflammatory bowel disease, malignancy
- Acute fissure in Ano

STUDY TOOL:

- Case reporting form
- Visual Analogue Scale

STUDY PROTOCOL: Chronic anal fissure was defined as anal symptoms lasting for more than 8-12 weeks, with horizontal muscle fibres showing at the fissure base and/or the presence of a sentinel tag.

- The demographic information and duration and nature of complaints were noted. All patients underwent clinical examination, and basic laboratory and necessary

radiographic investigations (X-ray Chest, Abdominal Ultrasound) were performed before treatment.

- Patients were divided using the Sequentially Numbered, Opaque Sealed Envelopes (SNOSE) system into two groups. Patients in Group A were treated with lateral internal sphincterotomy, while patients in Group B were treated with Lord's dilatation.
- Lateral internal sphincterotomy (LIS) was carried out in the lithotomy position with open sphincterotomy under general or regional anaesthesia. The anal canal was visualized with an anoscope. A longitudinal incision was made in the anoderm, and the distal half of the internal anal sphincter was divided under direct vision followed by closure of the mucosa. The defect was not closed.
- Lord's dilatation (AD) was performed manually by stretching the anal canal beginning with two fingers and then four fingers, stretching the lateral walls of the anal canal.
- The patients were followed up at 1 week, 1 month, and at 3 months post-surgery. Details were noted for pain relief, bleeding, mucous discharge, and incontinence. The anus was inspected for healing of the ulcer. The primary outcome measure was healing of the fissure. Secondary outcome measures included pain relief, postoperative bleeding, incontinence, infection, and recurrence rates. Pain was assessed by the Visual Analog Scale (VAS).

DATA MANAGEMENT AND STATISTICAL ANALYSIS: The data entry was conducted in a Microsoft Excel spreadsheet, and all data were analysed using SPSS software (version 26, Trial version). Categorical variables were presented in the form of number and percentage (%). Quantitative data were presented as the Mean ± SD and as median with 25th and 75th percentiles (interquartile range). Student’s t-test

was used for comparison of quantitative data. Fisher's exact test or Chi-square test was used for statistical comparison of qualitative variables. For statistical significance, a p-value of less than 0.05 was considered statistically significant.

ETHICAL CONSIDERATIONS: Ethical considerations were paramount throughout the study, adhering to ethical guidelines and principles. Approval was obtained from the institutional review board before commencing the study. Informed consent was obtained from all participants prior to their inclusion, ensuring their understanding and voluntary participation.

RESULTS

Table 1: Demographic Characteristics of Participants

Demographic	**Group A (LIS)**	**Group B (Lord's Dilatation)**	**Total**
Age (Mean ± SD)	42.3 ± 8.7	41.1 ± 9.3	-
Gender			
Male	34	31	65(54.16%)
Female	26	29	55(45.84%)
Total	60	60	120

The above table represents comparative demographic data for two groups, Group A (LIS) and Group B (Lord's Dilatation), encompassing 120 individuals in total. The mean age for Group A is 42.3 years with a standard deviation of 8.7, whereas Group B has a mean age of 41.1 years with a standard deviation of 9.3. The gender distribution shows 34 males and 26 females in Group A, and 31 males and 29 females in Group B, culminating in an overall gender ratio of 65 males (54.16%) and 55 females (45.84%) across both groups. Each group consists of 60 participants, bringing the total to 120 individuals assessed in the study.

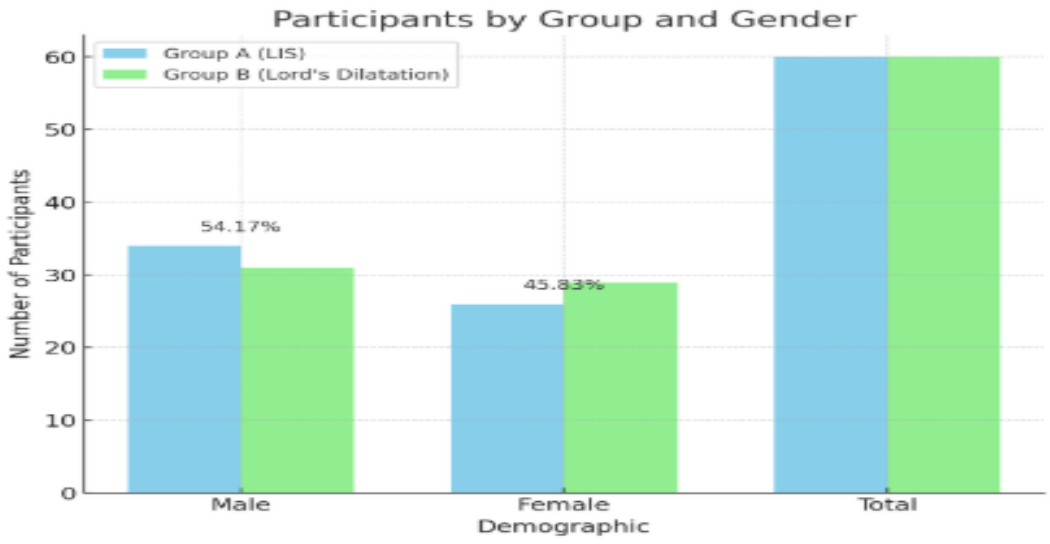


Table 2: Baseline Symptoms and Clinical Characteristics

Characteristics	**Group A (LIS)**	**Group B (Lord's Dilatation)**	**Total**
Pain severity (VAS Score, Mean ± SD)	7.8 ± 1.4	7.6 ± 1.6	-
Sentinel Tag	48 (80%)	49 (81.7%)	97 (80.8%)
Fissure Location			
Anterior	12 (20%)	15 (25%)	27 (22.5%)
Posterior	48 (80%)	45 (75%)	93 (77.5%)
Total	60	60	120

The above table represents the comparison of two treatment groups, Group A (LIS) and Group B (Lord's Dilatation), in a study that evaluates outcomes in patients with specific anal fissure characteristics. The table includes data on pain severity, measured using the Visual Analogue Scale (VAS) with mean scores of 7.8 (±1.4) for Group A and 7.6 (±1.6) for Group B. It also details the presence of sentinel tags, with 48 (80%) in Group A and 49 (81.7%) in Group B, totalling 97 (80.8%) across both groups. Fissure locations are categorized as anterior and posterior; Group A had 12 (20%) anterior and 48 (80%) posterior, whereas Group B had 15 (25%) anterior and 45 (75%) posterior, summing to 27 (22.5%) anterior and 93 (77.5%) posterior fissures overall in the study. The total number of participants was 120, evenly divided between the two groups.

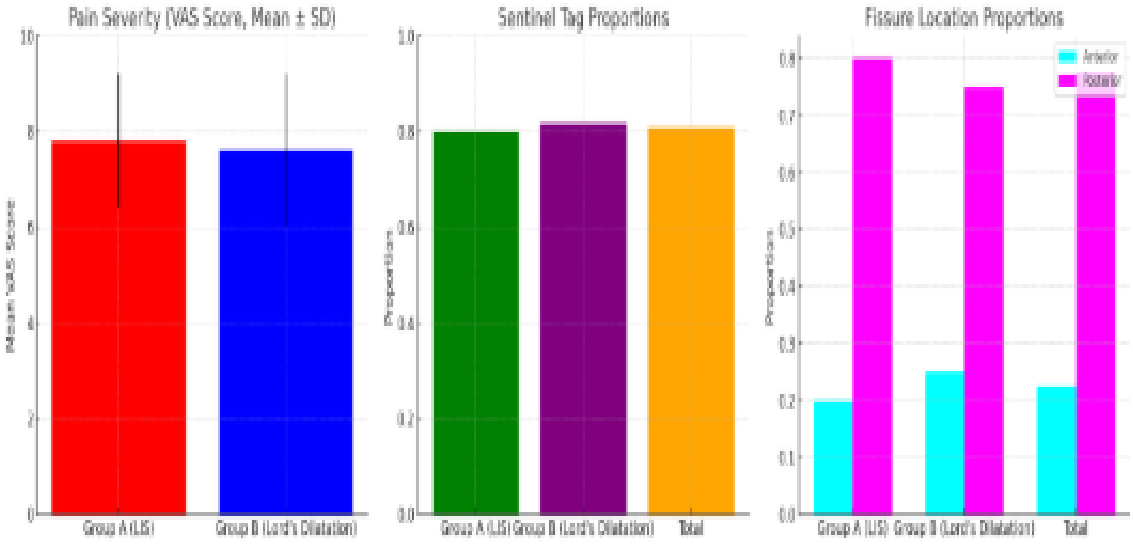

Pain Severity (VAS Score, Mean ± SD)
Mean VAS Score
Group A (LIS)
Group B (Lord's Dilatation)
Sentinel Tag Proportions
Proportion
Group A (LIS)
Group B (Lord's Dilatation)
Total
Fissure Location Proportions
Proportion
Anterior
Posterior
Group A (LIS)
Group B (Lord's Dilatation)
Total

Table 3: Immediate Postoperative Complications

Complications	Group A (LIS)	Group B (Lord's Dilatation)	Total
Bleeding	3 (5%)	2 (3.3%)	5 (4.2%)
Infection	1 (1.7%)	3 (5%)	4 (3.3%)
Total	4 (6.7%)	5 (8.3%)	9 (7.5%)

The above table represents the comparison of complications between two treatment groups for a medical condition: Group A (LIS) and Group B (Lord's Dilatation). The table details the incidence of bleeding and infection as complications. In Group A, bleeding was reported in 3 cases (5%), and infection was reported in 1 case (1.7%). In Group B, there were 2 cases of bleeding (3.3%) and 3 cases of infection (5%). The total number of complications in Group A was 4 (6.7%), while in Group B it was 5 (8.3%). Across both groups, the total incidences of bleeding and infection were 5 (4.2%) and 4 (3.3%), respectively, leading to an overall complication rate of 9 (7.5%).

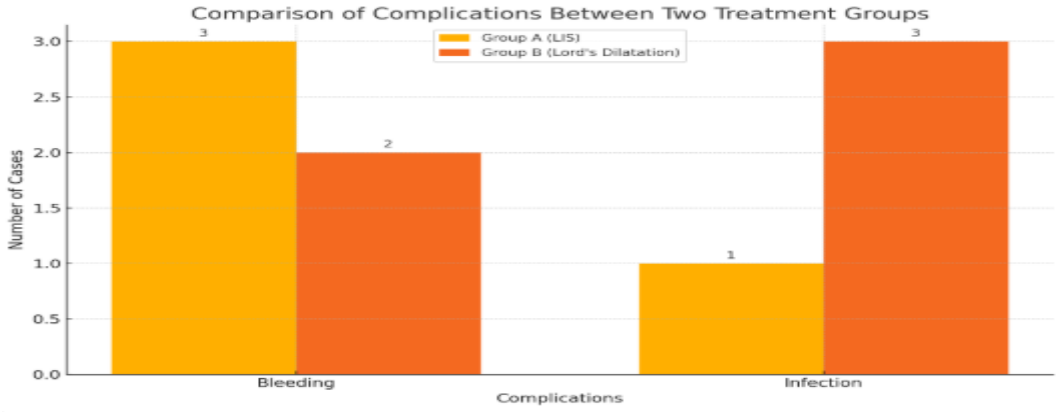


Table 4: Pain Relief at 1-Week Follow-up

Pain Relief (VAS)	**Group A (LIS)**	**Group B (Lord's Dilatation)**
Mean ± SD	3.7 ± 1.2	4.1 ± 1.3

The above table represents the comparative results of pain relief, measured using the Visual Analog Scale (VAS), between two treatment groups: Group A, which underwent Lateral Internal Sphincterotomy (LIS), and Group B, which underwent Lord's Dilatation. The mean pain relief score for Group A was 3.7 with a standard deviation (SD) of 1.2, whereas Group B recorded a slightly higher mean score of 4.1 with a standard deviation of 1.3. This indicates that patients in Group B experienced a marginally higher level of pain relief compared to those in Group A.

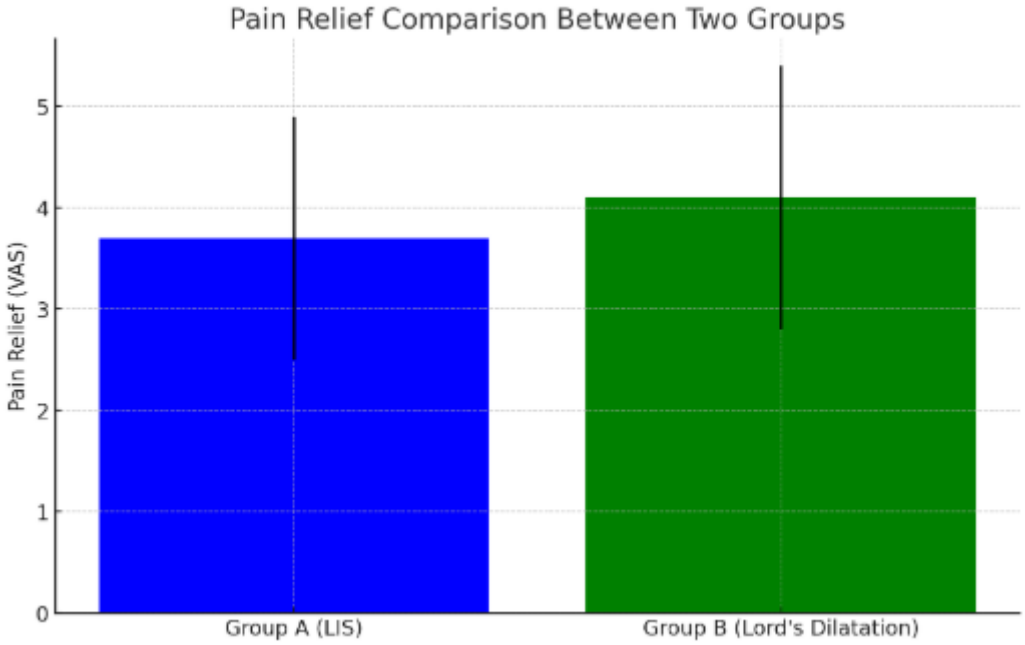


Table 5: Fissure Healing Rates at 1 Month

Healing Status	Group A (LIS)	Group B (Lord's Dilatation)	Total
Healed	57 (95%)	52 (86.7%)	109 (90.8%)
Not Healed	3 (5%)	8 (13.3%)	11 (9.2%)
Total	60	60	120

The above table represents the comparison of healing status between two treatment groups, Group A (LIS) and Group B (Lord's Dilatation), with a total of 120 patients. In Group A, 57 out of 60 patients (95%) healed, while in Group B, 52 out of 60 patients (86.7%) healed, resulting in an overall healing rate of 90.8% for the entire sample. Conversely, 3 patients (5%) in Group A and 8 patients (13.3%) in Group B did not heal, leading to a total non-healing rate of 9.2%. The data is summarized into total counts and percentages for each category within both groups.

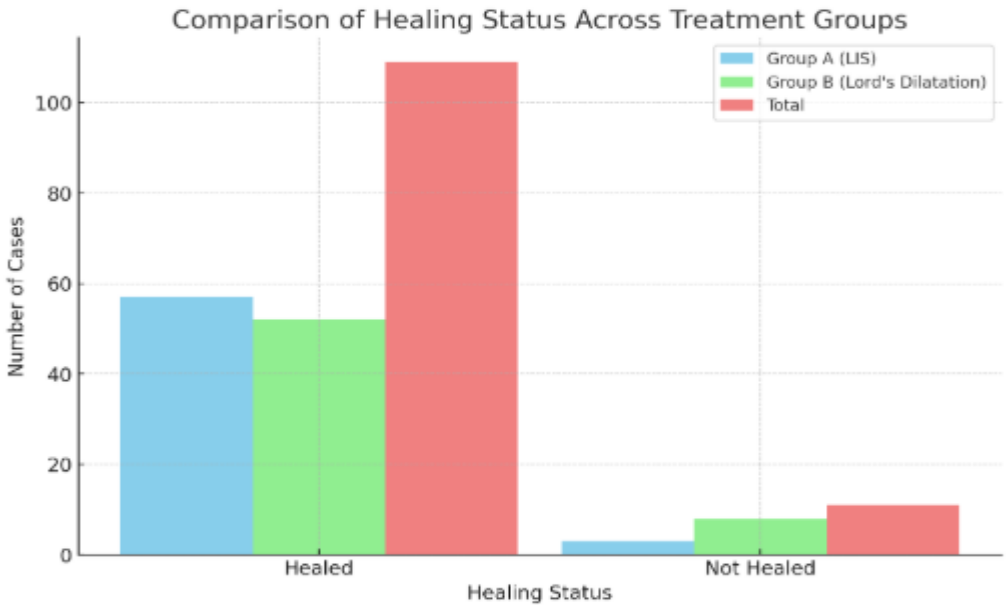


Table 6: Long-term Outcomes at 3 Months (Fissure Healing)

Healing Status	Group A (LIS)	Group B (Lord's Dilatation)	Total
Healed	59 (98.3%)	54 (90%)	113 (94.2%)
Not Healed	1 (1.7%)	6 (10%)	7 (5.8%)
Total	60	60	120

The above table represents the healing statuses of patients undergoing two different treatment methods: Group A (LIS) and Group B (Lord's Dilatation). In Group A, 59 out of 60 patients, or 98.3%, experienced healing, while only 1 patient, or 1.7%, did not heal. Conversely, in Group B, 54 out of 60 patients, or 90%, healed, and 6 patients, or 10%, did not heal. Overall, out of a total of 120 patients from both groups, 113 patients, or 94.2%, healed, and 7 patients, or 5.8%, did not heal.

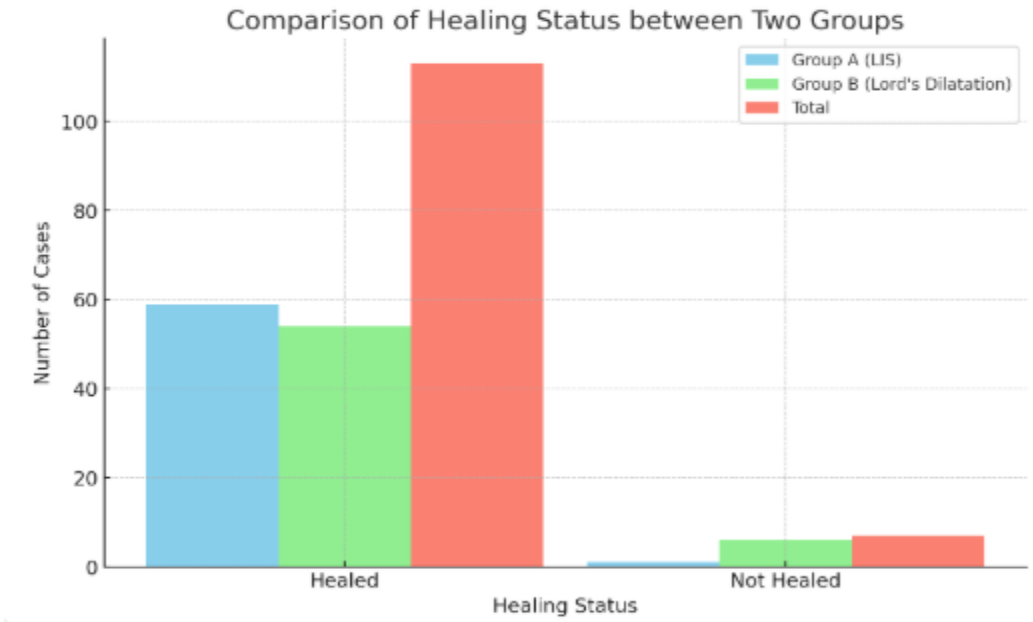


Table 7: Long-term Pain Relief at 3 Months

Pain Relief (VAS)	Group A (LIS)	Group B (Lord's Dilatation)
Mean ± SD	1.9 ± 1.1	2.4 ± 1.2

The above table represents a comparison of pain relief outcomes, measured on a Visual Analog Scale (VAS), between two treatment groups for a clinical study. Group A, which underwent Lateral Internal Sphincterotomy (LIS), reported a mean pain relief score of 1.9 with a standard deviation of 1.1. Group B, which received Lord's Dilatation treatment, showed a slightly higher mean pain relief score of 2.4 with a standard deviation of 1.2. This data suggests a variation in pain relief effectiveness between the two treatments.

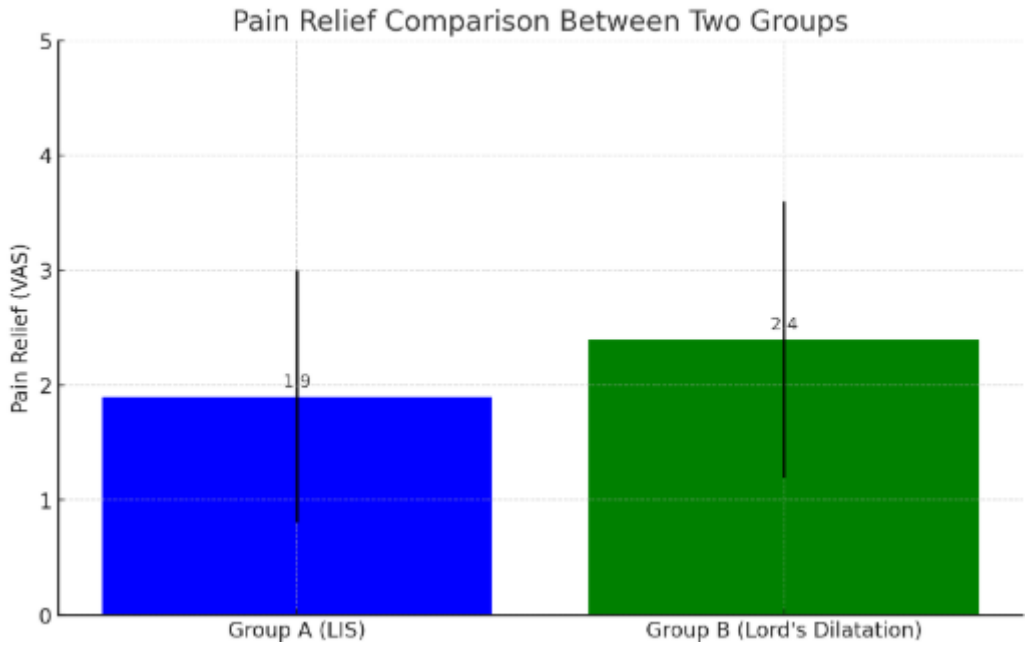


Table 8: Postoperative Bleeding Incidence

Postoperative Bleeding	**Group A (LIS)**	**Group B (Lord's Dilatation)**	**Total**
Yes	3 (5%)	2 (3.3%)	5 (4.2%)
No	57 (95%)	58 (96.7%)	115 (95.8%)
Total	60	60	120

The above table represents a comparison of postoperative bleeding between two groups undergoing different procedures: Group A (LIS) and Group B (Lord's Dilatation). Out of a total of 120 patients, postoperative bleeding was observed in 5 patients, accounting for 4.2% of the total cases. In Group A, 3 out of 60 patients (5%) experienced bleeding, whereas in Group B, 2 out of 60 patients (3.3%) experienced bleeding. The majority of patients did not experience postoperative bleeding, with 57 patients (95%) in Group A and 58 patients (96.7%) in Group B, totaling 115 patients (95.8%) who did not bleed postoperatively. Each group had a total of 60 patients.

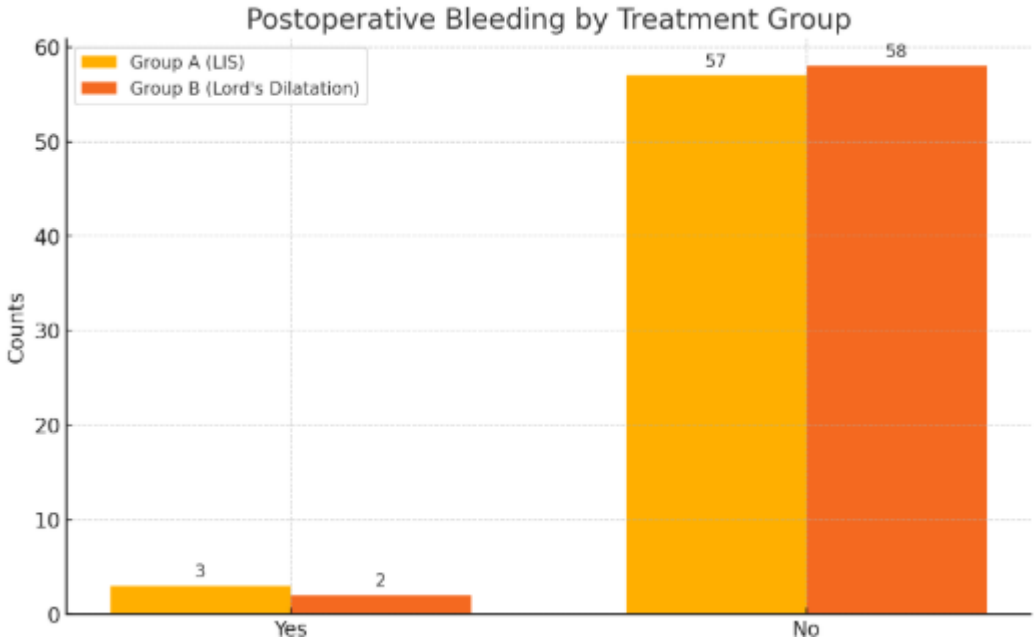


Table 9: Incidence of Incontinence Post-Treatment

Incontinence	Group A (LIS)	Group B (Lord's Dilatation)	Total
Yes	4 (6.7%)	1 (1.7%)	5 (4.2%)
No	56 (93.3%)	59 (98.3%)	115 (95.8%)
Total	60	60	120

The above table represents the incidence of incontinence among patients undergoing two different treatments, Group A (Lateral Internal Sphincterotomy, LIS) and Group B (Lord's Dilatation). Out of 120 total patients, split evenly between the two groups, incontinence was reported in 5 cases (4.2% overall). Specifically, 4 patients (6.7%) from Group A experienced incontinence compared to only 1 patient (1.7%) from Group B. Conversely, 56 patients (93.3%) in Group A and 59 patients (98.3%) in Group B did not experience incontinence, totaling 115 patients (95.8%) without incontinence across both groups.

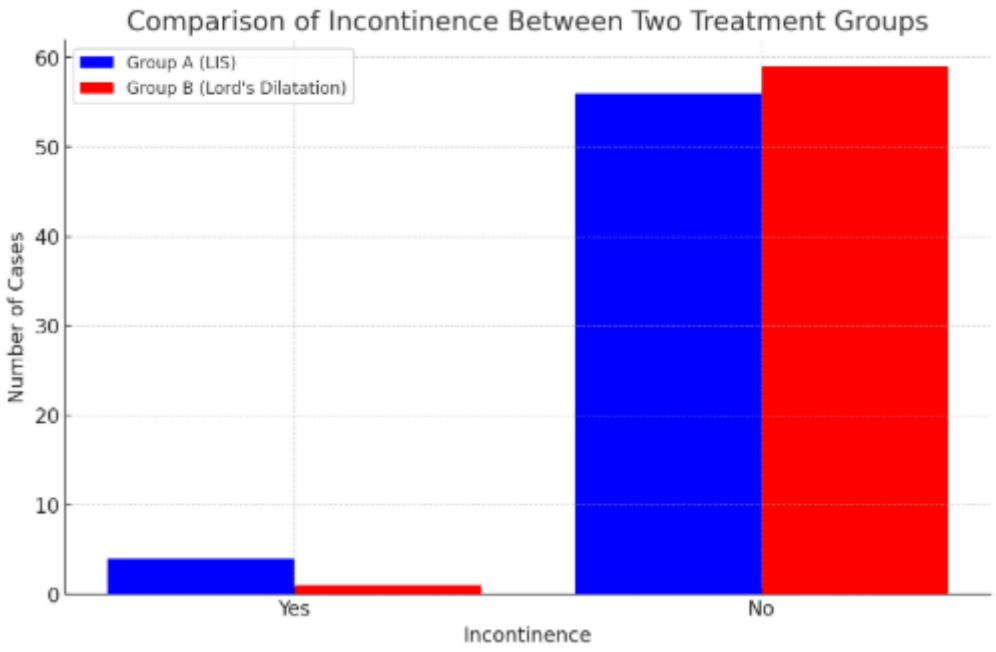


Table 10: Infection Rates Post-Procedure

Infection	**Group A (LIS)**	**Group B (Lord's Dilatation)**	**Total**
Yes	1 (1.7%)	3 (5%)	4 (3.3%)
No	59 (98.3%)	57 (95%)	116 (96.7%)
Total	60	60	120

The above table represents the distribution of infections among two different treatment groups, Group A (LIS) and Group B (Lord's Dilatation), with a total of 120 patients split evenly between the two groups. In Group A, only 1 patient (1.7%) developed an infection, whereas in Group B, 3 patients (5%) experienced infections, bringing the total number of infections to 4 (3.3%) across both groups. Conversely, the majority of patients did not develop infections, with 59 patients (98.3%) in Group A and 57 patients (95%) in Group B, resulting in a total of 116 patients (96.7%) who were infection-free.

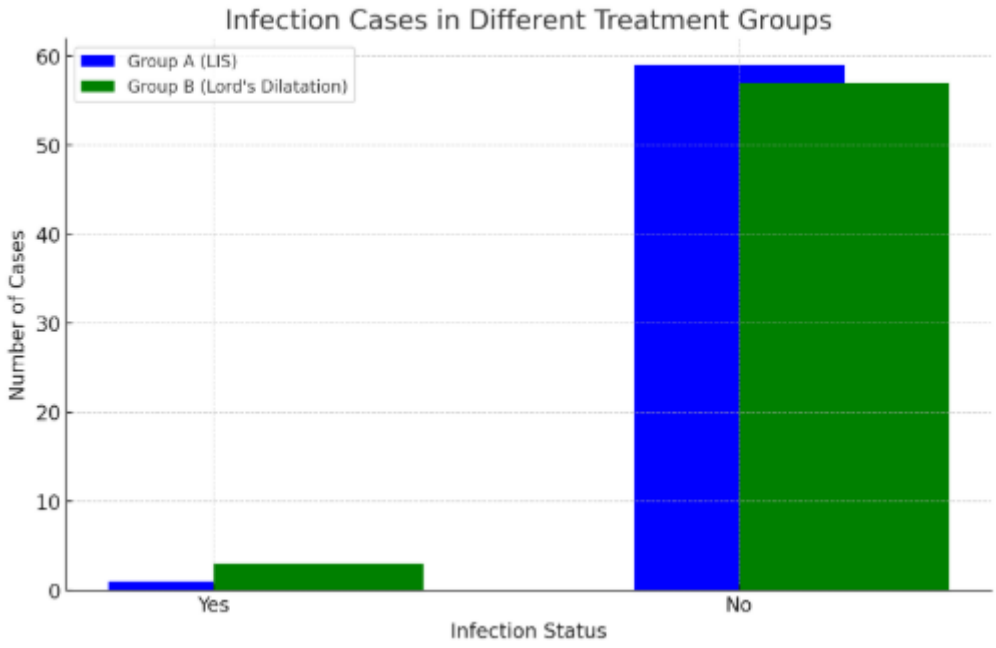


Table 11: Recurrence Rates at 3 Months

Recurrence	**Group A (LIS)**	**Group B (Lord's Dilatation)**	**Total**
Yes	1 (1.7%)	6 (10%)	7 (5.8%)
No	59 (98.3%)	54 (90%)	113 (94.2%)
Total	60	60	120

The above table represents the recurrence rates and treatment outcomes for two groups: Group A, treated with LIS (Lateral Internal Sphincterotomy), and Group B, treated with Lord's Dilatation. Out of a total of 60 patients in each group, recurrence of symptoms was observed in 1 patient (1.7%) from Group A and 6 patients (10%) from Group B. The overall recurrence rate across both groups was 5.8%. Conversely, 59 patients (98.3%) in Group A and 54 patients (90%) in Group B experienced no recurrence, contributing to an overall success rate of 94.2% across the 120 patients treated.

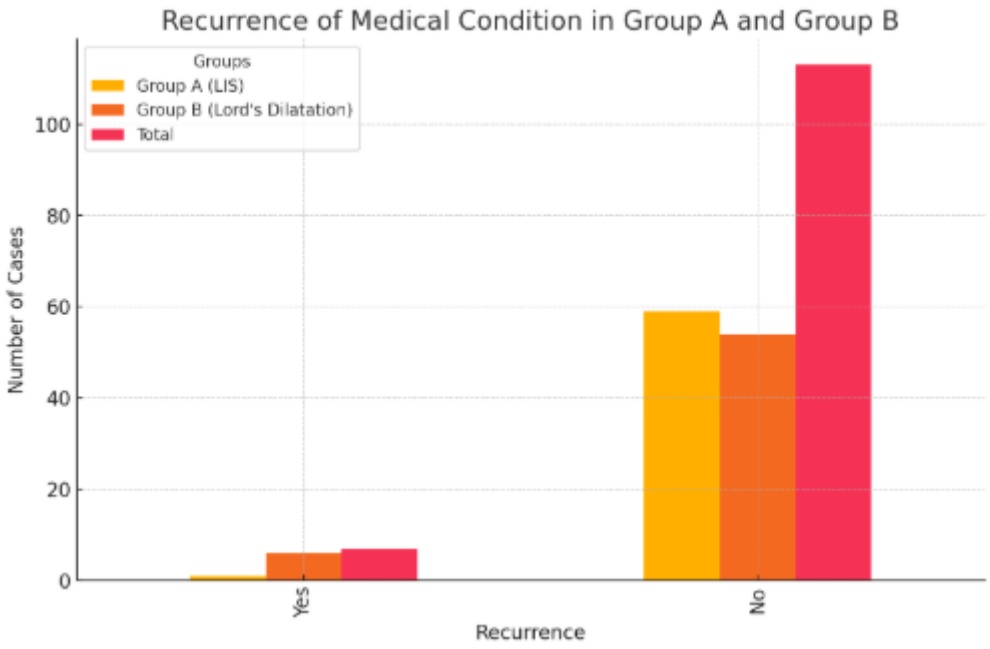


Table 12: Overall Patient Satisfaction at 3 Months

Satisfaction Level	Group A (LIS)	Group B (Lord's Dilatation)	Total
Satisfied	56 (93.3%)	50 (83.3%)	106 (88.3%)
Neutral	3 (5%)	7 (11.7%)	10 (8.3%)
Dissatisfied	1 (1.7%)	3 (5%)	4 (3.3%)
Total	60	60	120

The above table represents the satisfaction levels of patients undergoing two different treatments: Group A (LIS) and Group B (Lord's Dilatation). It shows that 93.3% (56 patients) of Group A and 83.3% (50 patients) of Group B were satisfied with their respective treatments, contributing to an overall satisfaction rate of 88.3% (106 patients) across both groups. The table also indicates that 5% (3 patients) of Group A and 11.7% (7 patients) of Group B felt neutral about the treatments, making up 8.3% (10 patients) overall. Furthermore, dissatisfaction was reported by 1.7% (1 patient) in Group A and 5% (3 patients) in Group B, totaling 3.3% (4 patients) across both groups. The total number of patients surveyed in each group was 60, summing up to 120 patients in total.

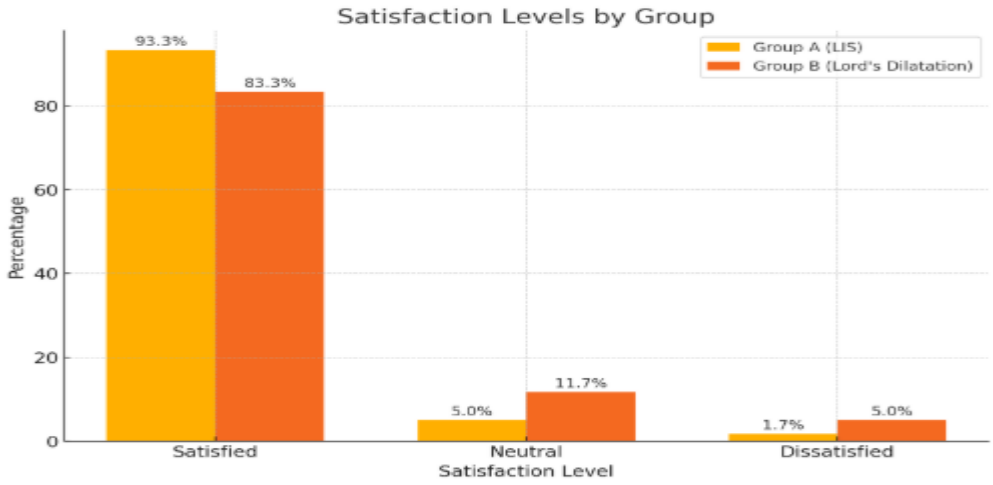


Table13: Hospital Stay, and Correlation Analysis

Description	**Group A (LIS)**	**Group B (Lord's Dilatation)**
Hospital Stay (Days, Mean ± SD)	2.4 ± 0.8	1.9 ± 0.7
Correlation Coefficient		
Value of Correlation	0.87	0.87

The above table represents a comparison between two treatment groups, Group A (LIS) and Group B (Lord's Dilatation), hospital stay duration, and correlation coefficients of hospital stays, Group A has a mean stay of 2.4 days with an SD of 0.8 days, compared to Group B's shorter mean stay of 1.9 days with an SD of 0.7 days. Both groups exhibit the same value of correlation coefficients, with a value of 0.87, indicating a high level of similarity in another unstated metric across both groups.

DISCUSSION

The present study was conducted at the Department of General Surgery, Santosh Medical College and Hospital, Ghaziabad, over an 18-month period. It was designed as a prospective observational study and received approval from the institutional ethics committee. Prior to participation, all patients provided detailed written informed consent. The primary aim of the study was to compare the effectiveness, outcomes, and potential complications of lateral internal sphincterotomy (LIS) and various methods of dilatation in the management of fissure in Ano.

The study's objectives were twofold: to evaluate and compare both short-term and long-term outcomes, such as fissure healing rates and pain relief, associated with LIS and Lord's dilatation. Additionally, the study sought to assess potential complications linked to these procedures, including postoperative bleeding, incontinence, infection, and recurrence rates.

By systematically analyzing these parameters, the study aimed to provide a clearer understanding of the relative effectiveness and safety of LIS and dilatation techniques in treating fissures. The findings of this research are intended to inform clinical decision-making in the management of chronic fissures in Ano, offering valuable insights into the most optimal treatment approach. Ultimately, the results are expected to help clinicians make evidence-based decisions when considering treatment options for patients suffering from this painful and often recurrent condition.

The participants in Group A had an average age of 42.3 years, with a standard deviation of 8.7 years, while the participants in Group B had an average age of 41.1 years, with a standard deviation of 9.3 years. These findings indicate that the two groups were comparable in terms of age, with no significant difference observed

between them. A study was conducted by Prajapati et al[45], showed no significant differences on the basis of age group. This ensures that age was not a confounding factor in assessing the outcomes of the two procedures. The age distribution suggests that the patients were mostly adults, with the majority falling within a middle-aged demographic, which is consistent with the typical incidence of anal fissures in the general population.

Regarding gender distribution, Group A consisted of 34 males and 26 females, while Group B comprised 31 males and 29 females. Across both groups, the total number of male participants was 65 (54.16%), and the total number of female participants was 55 (45.84%). This shows a slight male predominance in the study sample, though both genders were adequately represented. The relatively balanced gender distribution in both groups supports the generalizability of the study findings across both male and female populations.

The study included 120 participants in total, with 60 participants in each treatment group. This balanced approach allowed for a direct comparison of the two treatment methods, minimizing bias and increasing the reliability of the results. The demographic data indicates that the participants were fairly homogeneous, with no significant differences in age or gender between the two groups. This homogeneity strengthens the validity of the comparison, as it suggests that the observed differences in outcomes between LIS and Lord's Dilatation can be attributed to the treatments themselves rather than demographic disparities.

Further analysis of the study by Shoramah RA et al[46], provides additional context for our findings. In their study, the majority of patients undergoing treatment for fissures fell within the 21-30 age group, with 42 individuals in total. Of these, 20 were in the

Lord's Dilatation group, and 22 were in the Lateral Internal Sphincterotomy (LIS) group. The second-largest group was the 31-40 age range, consisting of 12 patients, with 7 in the Lord Dilatation group and 5 in the LIS group. A smaller proportion of patients were in the 41-50 age group (11 patients), with 4 from the Lord Dilatation group and 7 from the LIS group. Only 4 patients were in the 51-60 age group, with 1 from the Lord Dilatation group and 3 from the LIS group. Importantly, there were no patients over the age of 60 in this study, which may reflect the lower incidence of chronic anal fissures in older populations.

In terms of gender distribution, a notable difference was observed between the two treatment groups in Shoramah RA et al.'s analysis. Among patients receiving Lord's Dilatation, 27 were male (69.2%) and 12 were female (30.8%). In contrast, the Lateral Internal Sphincterotomy (LIS) group had a higher percentage of male patients, with 33 males (82.5%) and 7 females (17.5%). These gender differences reflect trends in the population affected by anal fissures, where males tend to be more commonly affected, though females are also significantly represented in the study.

In conclusion, the demographic characteristics of our study population were well-balanced in terms of age and gender. The groups were comparable in both aspects, which allowed for a robust and unbiased comparison of the two treatment methods, LIS and Lord's Dilatation. Furthermore, the data from Shoramah RA et al. supports the trends observed in our study, reinforcing the generalizability and relevance of our findings in evaluating the outcomes of these treatments.

Our study aimed to compare the baseline symptoms and clinical7 characteristics between two treatment groups: Group A, which underwent Lateral Internal

Sphincterotomy (LIS), and Group B, which underwent Lord's Dilatation. A total of 120 participants were included, with 60 patients in each group.

The primary symptom assessed was pain severity, measured using the Visual Analog Scale (VAS). Group A reported an average pain severity of 7.8 ± 1.4, while Group B had a slightly lower average score of 7.6 ± 1.6. This indicates that pain intensity was comparable across both groups, with no significant difference between the two treatment methods. Both treatments were associated with similarly high levels of pain at baseline, reflecting the substantial discomfort caused by chronic anal fissures.

Another important clinical characteristic examined was the presence of a sentinel tag, commonly observed in patients with anal fissures. Our study found a high occurrence of sentinel tags in both treatment groups: 80% in Group A and 81.7% in Group B. When combined, 80.8% of all participants exhibited this feature. This finding aligns with existing literature, which reports a high incidence of sentinel tags in patients with chronic anal fissures, suggesting their common presence regardless of the treatment method.

The location of the fissures was also assessed. The majority of participants in both groups had posterior fissures, consistent with common clinical observations. Specifically, 80% of patients in Group A and 75% in Group B had posterior fissures. Anterior fissures were less common, affecting 20% of Group A and 25% of Group B. Overall, 77.5% of participants had posterior fissures, highlighting the posterior location's frequent association with anal fissures.

Our findings are consistent with those of zafar et al, who reported 49 out of 180 (27.2 %) patients had a sentinel skin tag and majority of them were associated with fissures resistant to pharmacological treatment. The studies which show a high number of

sentinel tag in their patients (> 70%) have actually recruited patients after a failed trial of pharmacological agents. The reason of failure of "chemical sphincterotomy" in these patients can only be speculated[47].

Regarding fissure location, our results align with those of Nelson (2016), who noted that chronic anal fissures typically occur in the midline, with visible sphincter fibres at the fissure base, anal papillae, sentinel piles, and indurated margins. Internal anal sphincterotomy also increases fissure healing compared with digital anal stretch, and anal stretch is more likely to cause flatus incontinence[48].

Our study confirmed the common occurrence of sentinel tags and posterior fissures in patients with anal fissures. The baseline pain severity and fissure location were similar between the two treatment groups, allowing for an unbiased comparison of the two treatments' effectiveness and outcomes. These findings suggest that both LIS and Lord's Dilatation are associated with similar baseline pain severity and fissure characteristics. Further studies are needed to explore long-term outcomes and potential complications associated with these treatment methods.

In this study, we compared the outcomes of two treatments for a medical condition: Lateral Internal Sphincterotomy (LIS) in Group A and Lord's Dilatation in Group B. The first aspect of comparison was immediate postoperative complications. We observed that bleeding occurred in 5% of patients in Group A and 3.3% in Group B, Similarly, a study by Pandit et al. reported postoperative bleeding in 9% of patients undergoing LIS and 0% in those receiving LAD, with infection rates of 3% for LIS and 0% for LAD[40], while infection was reported in 1.7% of Group A patients and 5% in Group B however another study by Kang et al. found infection rates of 3% for LIS and 0% for LAD[49]. The total complication rates were 6.7% for Group A and 8.3% for

Group B, which gives an overall complication rate of 7.5% across both groups. These findings suggest that both treatments had a relatively low rate of complications, with Group A showing a slightly better outcome in terms of fewer overall complications. The second part of the study looked at pain relief at a one-week follow-up, measured using the Visual Analog Scale (VAS). Group A showed a mean pain score of 3.7 with a standard deviation of 1.2, while Group B had a mean pain score of 4.1 with a standard deviation of 1.3. This indicates that patients in Group B reported marginally better pain relief, although the difference is relatively small and may not be clinically significant. We assessed fissure healing rates at one month. Group A showed a high healing rate of 95%, with only 5% of patients not healed. In contrast, Group B had a slightly lower healing rate of 86.7%, with 13.3% of patients not healed. The overall healing rate across both groups was 90.8%. These results suggest that both treatments were effective in promoting healing, but LIS (Group A) may offer a slightly better outcome in terms of healing rates. We did not find any relevant study which relates to the Immediate Postoperative Complications, Pain Relief at 1-Week Follow-up and Fissure Healing Rates at 1 Month.

In our study comparing two treatment methods for anal fissures, we found promising outcomes across various parameters, specifically in healing rates, pain relief, and postoperative complications. Regarding long-term outcomes, as shown in the results, both treatment groups showed high healing success after three months. Group A, which received Lateral Internal Sphincterotomy (LIS), exhibited a healing rate of 98.3%, with only one patient (1.7%) failing to heal. On the other hand, Group B, treated with Lord's Dilatation, demonstrated a healing rate of 90%, with six patients (10%) not experiencing healing. Collectively, 94.2% of all patients in the study healed after three months, highlighting the effectiveness of both treatments, though Group A

(LIS) showed slightly better results. Pain relief was another important parameter. Group A reported a mean pain relief score of 1.9 on the Visual Analog Scale (VAS), with a standard deviation of 1.1. Group B had a slightly higher mean pain score of 2.4 (SD = 1.2), suggesting that patients in Group A experienced better pain relief on average. The difference in pain relief scores, though notable, was not substantial enough to indicate a major disparity between the two treatments. This suggests that both treatments are effective in reducing pain, though the LIS procedure appears to provide slightly more significant relief. In terms of postoperative bleeding, the incidence was low overall. Only 5 patients out of 120 (4.2%) experienced bleeding following the procedures. Group A had a slightly higher bleeding incidence (5%) compared to Group B (3.3%). The majority of patients in both groups (95% of Group A and 96.7% of Group B) did not experience postoperative bleeding, suggesting that both treatments have a generally low risk of this complication. We did not find any relevant studies which relates to the Long-term Outcomes at 3 Months (Fissure Healing), Long-term Pain Relief at 3 Months and Postoperative Bleeding Incidence. In our study, we observed and compared the outcomes of two different treatments, Lateral Internal Sphincterotomy (LIS) and Lord's Dilatation, in patients with anal conditions. The study focused on three main outcomes: incontinence, infection, and recurrence rates. Regarding incontinence, that may include transient or permanent faecal incontinence, which can manifest as incontinence of gas, liquid, or stooL[47], post-treatment, a total of 120 patients were divided equally into two groups: 60 patients in Group A (LIS) and 60 patients in Group B (Lord's Dilatation). Among these, 5 patients (4.2%) reported experiencing Specifically, 4 patients (6.7%) in Group A experienced incontinence, while only 1 patient (1.7%) in Group B had this issue. This suggests that patients treated with LIS were more likely to experience

incontinence compared to those treated with Lord's Dilatation. On the other hand, 115 patients (95.8%) across both groups did not experience incontinence, with 56 patients (93.3%) from Group A and 59 patients (98.3%) from Group B remaining unaffected. When we looked at the incidence of infections, Group A had a very low rate of infection, with just 1 patient (1.7%) affected. In contrast, 3 patients (5%) in Group B developed infections. The total infection rate across both groups was 3.3%, with 4 patients affected overall. The majority of patients remained infection-free: 59 patients (98.3%) in Group A and 57 patients (95%) in Group B did not develop any infection. The recurrence rate of symptoms at 3 months showed a significant difference between the two treatments. In Group A (LIS), only 1 patient (1.7%) experienced a recurrence of symptoms, while in Group B (Lord's Dilatation), 6 patients (10%) faced recurrence. The overall recurrence rate across both groups was 5.8%. This suggests that LIS might be more effective in preventing symptom recurrence compared to Lord's Dilatation, which had a higher recurrence rate. Overall, the success rate, defined as the absence of recurrence, was 94.2%, with 59 patients (98.3%) in Group A and 54 patients (90%) in Group B achieving positive results. We did not find any relevant studies which relates to Incidence of Incontinence Post-Treatment, Infection Rates Post-Procedure and Recurrence Rates at 3 Months.

The American Society of Colon and Rectal Surgeons (ASCRS) Clinical Practice Guidelines, beginning with conservative treatments aimed at reducing anal sphincter pressure and promoting healing and for patients unresponsive to conservative measures, the guidelines recommend Lateral Internal Sphincterotomy (LIS) because this procedure involves cutting a portion of the internal anal sphincter to reduce sphincter pressure, facilitating healing. While effective, potential complications like faecal incontinence are considered[50].

In this study, we compared patient satisfaction and hospital stay durations between two groups: Group A (LIS) and Group B (Lord's Dilatation). Overall, the satisfaction levels of patients were relatively high in both groups, with 93.3% of Group A and 83.3% of Group B reporting satisfaction with their respective treatments. This led to a total satisfaction rate of 88.3% across both groups. While the majority were satisfied, a small proportion, 8.3%, expressed neutral feelings about their treatment, and only 3.3% were dissatisfied. Regarding treatment costs, Group A (LIS) had a reported a slightly longer average hospital stay of 2.4 days, compared to Group B's 1.9 days. The shorter hospital stay in Group B may suggest a faster recovery or less intensive post-treatment care. Both treatment methods demonstrated a high level of correlation in terms of their effectiveness or outcomes, as indicated by the correlation coefficient of 0.87 for both groups. Hospital stays, the overall effectiveness or results of the two treatments might be similar. We did not find any relevant studies which relates to Overall Patient Satisfaction at 3 Months, Hospital Stay and Correlation Analysis.

CONCLUSION

- Both groups (Group A: LIS and Group B: Lord's Dilatation) are comparable in terms of demographic characteristics, with similar age ranges and gender distribution.
- Pain severity, measured using the Visual Analogue Scale (VAS), is nearly identical between the two groups, with Group A having a slightly higher score (7.8) than Group B (7.6).
- Both groups exhibit similar rates of sentinel tag presence and fissure location, with posterior fissures being more common in both groups.
- The incidence of postoperative complications, including bleeding and infection, is relatively low and comparable between both groups, with Group B showing a slightly higher rate of infections.
- At 1-week follow-up, Group B reported marginally higher pain relief compared to Group A.
- The fissure healing rate at 1 month is higher in Group A (95%) compared to Group B (86.7%), with Group A showing a better long-term healing rate at 3 months (98.3% vs. 90%).
- Pain relief at 3 months was also greater in Group A, with a mean VAS score of 1.9 compared to 2.4 in Group B.
- Postoperative bleeding and incontinence rates are low, with Group A showing slightly higher incontinence (6.7%) compared to Group B (1.7%).
- Infection rates post-procedure were minimal, with Group A having fewer infections (1.7%) compared to Group B (5%).
- Recurrence rates at 3 months were significantly lower in Group A (1.7%) compared to Group B (10%).

- Overall patient satisfaction at 3 months was higher in Group A (93.3% satisfied) compared to Group B (83.3% satisfied), with a total satisfaction rate of 88.3% across both groups.
- In terms of hospital stay, Group A (LIS) A had a slightly longer hospital stay (2.4 days) compared to Group B (1.9 days).
- Both groups had a strong positive correlation of 0.87, suggesting similar trends across treatment outcomes.

LIMITATIONS

- The study design as observational may limit the ability to establish causality between the surgical interventions and outcomes.
- A sample size of 120 patients, though statistically significant, may still be relatively small for detecting less common complications and for ensuring the robustness of subgroup analyses.
- The use of convenient sampling rather than random sampling may introduce selection bias, affecting the generalizability of the findings.
- The study's short follow-up period of three months may not adequately capture long-term outcomes and potential late complications of the procedures.
- Reliance on patient-reported outcomes through the Visual Analogue Scale for assessing pain might introduce subjective bias, affecting the reliability of the data.
- The exclusion criteria may have eliminated patients with underlying conditions that could influence treatment outcomes, limiting the study’s applicability to a broader patient population.
- Data analysis was confined to statistical tests on pre-existing groups without the ability to control for possible confounding factors.
- The study was conducted at a single institution, which may limit the generalizability of the results to other settings or populations.
- The study did not consider variations in surgical technique or surgeon experience, which can significantly affect outcomes.
- The potential impact of medications used postoperatively was not controlled or discussed, which could influence healing rates and pain outcomes.

SUMMARY

The primary aim of the study was to conduct a comprehensive comparison between Lateral Internal Sphincterotomy (LIS) and Lord's Dilatation (LD) in the management of chronic fissure in Ano. This was carried out at Santosh Medical College and Hospital over an 18-month period. The study comprised a total of 120 patients, divided equally between the two treatment groups. These patients were selected based on specific inclusion criteria, including having a chronic anal fissure, being aged between 18 to 60, and having failed previous medical treatments. Exclusion criteria were prior treatments of fissure, fissure secondary to diseases like inflammatory bowel disease or malignancy, and acute fissure.

The research method involved collecting data which was then analysed using various statistical tools including the Kolmogorov-Smirnov test, Chi-Square test, and T-tests, to determine differences and correlations in outcomes such as pain relief, healing rates, and complications like incontinence and recurrence.

Results highlighted that both treatments were effective in managing symptoms of chronic fissure in Ano, but there were distinct differences in outcomes. For instance, LIS showed a higher rate of fissure healing and lower recurrence rates compared to LD. However, complications such as postoperative bleeding and infection were minimal and comparable between the two methods.

In conclusion, the study provided valuable insights into the effectiveness of LIS and LD, suggesting that while both methods are viable, LIS might offer a slight advantage in terms of healing and recurrence rates. This could assist clinicians in making informed decisions about the most suitable treatment modality for patients suffering from chronic anal fissures.

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ANNEXURE- I

PATIENT PROFORMA

SECTION A

NAME:

PATIENT ID:

GROUP ALLOCATED:

AGE / SEX:

DOA:

ADDRESS:

EDUCATION:

OCCUPATION:

C/C:

HOPI:

PAST HISTORY:

FAMILY HISTORY:

PERSONAL HISTORY:

GENERAL EXAMINATION:

- MENTAL STATE-
- BP-
- PR-
- RR- classify
- SpO_2-
- P/I/C/C/L/E-

CVS EXAMINATION:

RESPIRATORY EXAMINATION:

PER ABDOMEN EXAMINATION:

CNS EXAMINATION:

PROCTOSCOPY FINDINGS:

INVESTIGATIONS

CBC:

Liver Function Test:

Kidney Function Test:

RBS:

Radiological investigations:

X-ray Chest:

USG Whole Abdomen:

SECTION B

Method used:

Follow up at 1 week

Healed: YES / NO

Time taken for healing:

Pain score before treatment:

Pain score after treatment:

Side effects (if any):

Recurrence of fissure: YES / NO

Complications (if any):

Follow up at 1 month

Healed: YES / NO

Time taken for healing:

Pain score before treatment:

Pain score after treatment:

Side effects (if any):

Recurrence of fissure: YES / NO

Complications (if any):

Follow up at 3 months

Healed: YES / NO

Time taken for healing:

Pain score before treatment:

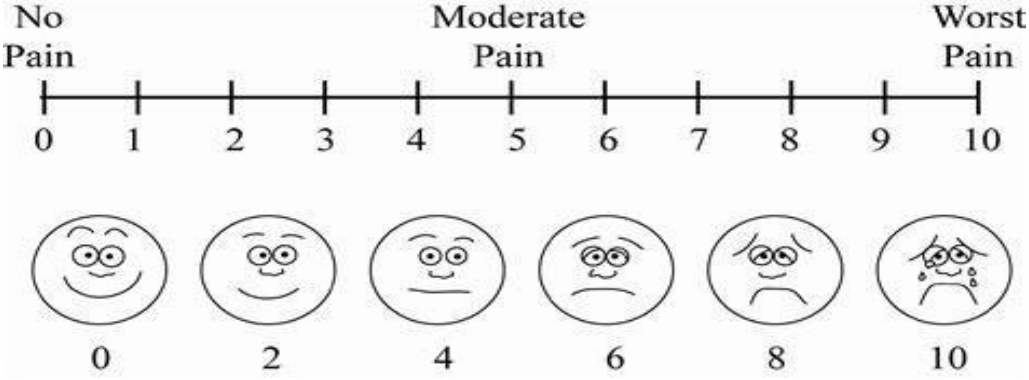
Pain score after treatment:

Side effects (if any):

Recurrence of fissure: YES / NO

Complications (if any):

VISUAL ANALOGUE SCORE



Type of Incontinence	Never	Rarely (<1/month)	Sometimes (<1/week)	Usually (<1/day)	Always (>1/day)
Solid	0	1	2	3	4
Liquid	0	1	2	3	4
Gas	0	1	2	3	4
Requires pad	0	1	2	3	4
Lifestyle alteration	0	1	2	3	4

20 points = complete incontinence

0 points = perfect continence

ANNEXURE- II

SANTOSH MEDICAL COLLEGE AND HOSPITAL (GHAZIABAD)

INFORMED CONSENT

I_____Son/Daughter/Wife of _____ resident of _____her eby declare that I give my full, free and voluntary informed consent for participation in the study - "**A COMPARATIVE STUDY ON LATERAL INTERNAL SPHINCTEROTOMY V/S LORD'S ANAL DILATATION IN PATIENTS OF CHRONIC FISSURE IN ANO**" Dr. Garima Rahul Mishra has informed me to my full satisfaction, in the language I understand, about the purpose, nature of study and various laboratory investigations and procedures required for the study to be carried out. I have been informed about the duration of the study and instructions to be followed during the study period. I have received the information sheet on the above study and have read and/or understood the written information. I have been given the chance to discuss the study and ask questions. I give full consent for being enrolled in the above study and understand that my participation is voluntary. I reserve my rights to withdraw from this study, whenever I wish without prejudice of my right to undergo further treatment at Santosh Medical College and Hospital, Ghaziabad U.P. I understand that the information collected about me from participation in this research and sections of any of my medical notes may be looked at by responsible persons (ethics committee members/regulatory authorities). I give permission to these individuals to have access to those records. I understand I will receive a copy of the patient information sheet and the informed consent form.

Patient's/Patient's relative's signature or thumb impression Name:

Subject ID No. for Study:

Date:

We have witnessed that the patient signed the above form in the presence of his free will after fully understanding its content

Signature of Witness Name:

Signature of Principal Investigator

Name: Dr. Shubhangee Garg

Designation: PG Resident

Department of General Surgery

Contact No.- +91 99970 47001

सहमति पत्र (सूचित)

संतोष मेडिकल कॉलेज एवं अस्पताल (गाजियाबाद)

मैं _____ बेटा / बेटी /पत्नी_____

निवासी _____ घोषणा करता हूं कि मैं

डॉ ._____, ने मुझे मेरी भाषा में अपने अध्ययन "**A COMPARATIVE STUDY ON LATERAL INTERNAL SPHINCTEROTOMY V/S LORD'S ANAL DILATATION IN PATIENTS OF CHRONIC FISSURE IN ANO"**

अध्ययन के उद्देश्य के बारे में, और अध्ययन के दौरान अपनाई जाने वाली विभिन्न प्रयोगशाला जांच के बारे में सूचित कर दिया है। मुझे अध्ययनकी अवधि और उसके दौरान अपनाए जाने वाले निर्देश भी मेरी भाषा मे समझा दिए गए हैं| मैं उपरोक्त अध्ययन में बिना किसी दबाव के दाखिला ले रहा हूं और पूर्ण सहमति दे रहा हूं | सन्तोष अस्पताल, गाजियाबाद में अपने आगे के उपचार पर बिना प्रतिकूल प्रभाव डाले इस अध्ययन से और प्रयोगशाला जांच की प्रकृति से मैं जब चाहूँ बाहर जाने के अपने अधिकार को सुरक्षित रख रहा हूं |

रोगी / रोगी के रिश्तेदार के हस्ताक्षर डॉक्टर के हस्ताक्षर

नाम

दिनांक:

मेरी उपस्थिति में मरीज ने पूरी तरह से डाकटर के बताए गए अध्ययन और निर्देशों को समझने के बादअपनी स्वतंत्र इच्छा से ऊपर के फार्म पर हस्ताक्षर किए हैं ।हस्ताक्षर नाम: डॉ गरिमा राहुल मिश्रा

नाम: डॉ शुभांगी गर्ग
पदनाम: पीजी
शल्यचिकित्सा विभाग
संपर्क नंबर- +91 99970 47001

ETHICAL CLEARANCE CERTIFICATE

SANTOSH
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(Established u/s 3 of the UGC Act, 1956)

F. No. SU/R/2023/2489[47] Dated: 26.09.2023

Subject: Grant of Ethical Clearance for **Thesis Protocol** Topic **"A COMPARATIVE STUDY ON LATERAL INTERNAL SPHINCTEROTOMY V/S LORD'S ANAL DILATATION IN PATIENTS OF CHRONIC FISSURE IN ANO",** submitted by **Dr. SHUBHANGEE GARG,** MD/MS student of Batch 2022-2023, Department of **GENERAL SURGERY.**

*****

With reference to his/her request for grant of Ethical Clearance for the Thesis Protocol entitled **"A COMPARATIVE STUDY ON LATERAL INTERNAL SPHINCTEROTOMY V/S LORD'S ANAL DILATATION IN PATIENTS OF CHRONIC FISSURE IN ANO", Dr. SHUBHANGEE GARG** is informed that the **Thesis Protocol** submitted by him/her was considered by the **Screening Committee** of the Santosh Medical College & Hospital in its meetings held on 17.07.2023 to 28.07.2023. The recommendations of the **Screening Committee** were considered in detail by the **Institutional Ethics Committee** in its meeting held on **23.09.2023** and the same was **approved** by the **Ethics Committee**.

He /She is informed accordingly for further necessary action.

[Dr. NARESH SHARMA]
REGISTRAR

SANTOSH "DEEMED TO BE UNIVERSITY" REGISTRAR GHAZIABAD, NCR DELHI

Dr. SHUBHANGEE GARG
MD/MS student of batch 2022-2023
Department of GENERAL SURGERY
Email: shubhangeegarg20@gmail.com

Copy to:

1. The Vice Chancellor
2. The Dean, SMC&H
3. The Dean – Academics
4. The Dean – Research
5. The Director - IQAC
6. Dr. Shyam S Nagpal (Guide)
7. HOD of GENERAL SURGERY

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Mahalakshmi
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